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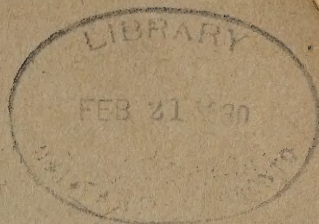
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VOCATIONAL EDUCATION

IN

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GENEVA
1929

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PREFACE

Origin of this Report

The decision of the International Labour Office to study the technical education of agricultural populations goes back several years. Vocational agricultural education was part of the original programme discussed at the Third Session of the International Labour Conference in 1921—the first discussion on agricultural problems undertaken by the International Labour Organisation. The result was the adoption at this Session, by 97 votes to 3 abstentions, of a Recommendation on the subject. The text of this Recommendation, together with a list of the States which have accepted it, will be found in the Appendix at the end of this volume.

The same Session of the Conference was also the starting point of another decision, namely, that to constitute an Advisory Agricultural Committee. Eventually this Committee was formed, but not as a Committee advisory solely to the International Labour Office; it was constituted as a Mixed Advisory Agricultural Committee, one-half of its membership having been accepted by the International Institute of Agriculture, Rome. As such it has continued to function, and has had the subject of vocational agricultural education before it.

At a preliminary meeting held in 1922, which preceded the formal constitution of this Committee, vocational agricultural education was brought forward by the International Labour Office as a subject on which the Committee, when constituted, might be consulted. The Governing Body of the Office endorsed this suggestion at its Nineteenth Session in June 1923. Accordingly a draft questionnaire on the subject was submitted by the Office to the First Session of the Committee in 1923. This draft was discussed both by the Committee itself and by the

experts whom they had convoked, and the result of their discussions was the approved text of a Questionnaire which was to be circulated to Governments, in the hope of obtaining such a body of information on vocational education in agriculture as would enable fresh light to be thrown on this subject and would be of assistance to authorities interested in improving or initiating opportunities of vocational education for rural populations.

The Questionnaire was despatched in April 1924 by the International Labour Office to all States Members of the International Labour Organisation and, further, through the agency of the International Institute of Agriculture at Rome, also to the United States of America and to Russia.

Answers have been received from the following countries :

Argentina	Greece
Australia	Haiti
Austria	Hungary
Belgium	Irish Free State
British India	Italy
Canada	Japan
Chile	Latvia
China	Netherlands
Cuba	Norway
Czechoslovakia	Poland
Denmark	Rumania
Estonia	South Africa
Finland	Spain
France	Sweden
Germany	Switzerland
Great Britain and Northern Ireland	Yugoslavia

*Sources Used*¹

An examination of the text of the Questionnaire, which will be found at the end of this volume, will show that the questions addressed to Governments were fairly elaborate. Some time elapsed before answers could be drawn up. These answers have in most cases been accompanied by a large number of annexes, texts of laws, annual reports of Agricultural and Education Departments, special pamphlets, etc. The answers, together

¹ A previous publication of the International Labour Office, *A Technical Survey of Agricultural Questions*, Geneva, 1921, includes on pp. 279-460 a review of technical agricultural education in nineteen countries.

with these annexes, have formed the basis of the present Report. There have been available, in addition, reports¹ communicated to the International Labour Office by those States which have accepted the 1921 Recommendation concerning the development of technical agricultural education, referred to above.

Indeed, the scope of the Questionnaire was originally planned to assist Governments to carry out their obligation under this Recommendation to forward "as full information as possible" on the measures they were taking for the encouragement of such education. But the importance subsequently given to the Questionnaire by the discussions in the Mixed Advisory Agricultural Committee placed the matter in a somewhat different light, and the answers to the Questionnaire have been considered by most Governments as special communications.

In these circumstances it appeared advisable to treat this survey as a special one and to make it as complete as possible. Information obtainable from sources other than the Government answers to the Questionnaire or the Government reports on the working of the Recommendation, when it appeared either interesting or important, has been freely used. As a rule, all facts about vocational agricultural education are set forth in official sources, and it is seldom necessary to go outside these in order to ascertain them. But as regards the working of the different forms of education offered, and on the question of the aims to be pursued, etc., other publications often throw a good deal of light and have been especially valuable in enabling the International Labour Office to appreciate the workers' point of view.

The reader should, however, understand that only the principal sources are mentioned at the end of the different sections, and that it has not been thought necessary to print a list either of the many annexes sent by Governments to their replies, or of the books, and especially the periodicals, which occasionally or frequently treat of agricultural education. Discussion of the subject is so widespread, even in the daily press, that a bibliography would be singularly meaningless. The same applies to legislation. Acts or Decrees of fundamental importance or special scope in vocational agricultural education are mentioned

¹ These will be found summarised in Part II of the Director's Reports submitted annually to the International Labour Conference.

briefly at the beginning of the sections on the different countries in Part II, but no attempt has been made to analyse the general legislative basis of the national educational systems, nor to give a list of the innumerable other Decrees, Regulations, Circulars, etc., which govern vocational education. This is all the less necessary as all systems of technical education depend largely on administrative action and initiative.

Finally, the International Labour Office desires to acknowledge the considerable assistance which it has derived from a manuscript study placed at its disposal by Dr. Walter Janicaud, Director of the Gladenbach Agricultural School, Biedenkopf-Kreis, Germany. This study, which constituted a comprehensive analysis, on an international basis, of the subject treated in this Report, and which included a large amount of documentation, has been both directly and indirectly of great use in clearing up many doubtful points. The International Labour Office is also indebted to several private organisations and individuals who have contributed valuable information.

Plan of the Report : Limits Set to the Discussion

The present Report will be found divided into two Parts. Part I gives a general survey on an international basis. It falls into three subsections, of which the first is descriptive and gives a fairly complete account of vocational agricultural education, its organisation and character, its large divisions, and the methods and technique employed. The next subsection is reserved for a discussion of some important special problems, and in a final subsection some remarks on the results of vocational agricultural education and its future are made.

Part II consists of special surveys of existing systems in each country, and is confined to a setting forth of facts in summary form¹. The material in Part II is given in the following order; a brief mention of the authority and legislation governing vocational agricultural education: a brief indication of the general structure of that education, and when possible an estimate of the proportion of the agricultural population who are benefiting

¹ In Part II countries are grouped in large regional groups, and within each group a geographical order is followed.

by it : a description of any agricultural educational lessons which are incorporated in the general educational system followed by the whole population, namely, elementary schools, secondary schools, continuation classes; a description of vocational agricultural schools and institutions, ranging from the lower-grade to the most advanced, and followed by notes on any special institutions; a description of extension courses or any other institutions whose purpose is to widen the range of agricultural vocational education and to bring a larger number of the population into contact with agricultural knowledge and improved practices.

Appendixes on the history of agricultural education are added to the surveys of a few countries where that history seems to be of special interest or to throw special light on the general subject matter of the Report.

Certain limits have been observed in the writing of this Report. The most important has been the omission of any survey on countries from whose Governments no answer has been received to the Questionnaire.

In the second place, the attempt to collect adequate material on the financing of vocational agricultural education has had to be set aside. A good deal of importance was attributed to the collection of information on this head as far back as 1921; indeed, the text of the Recommendation adopted by the Conference in that year asks the Governments to forward information among other things on "the sums expended . . . in order to develop vocational agricultural education". The Questionnaire also included questions on this head. Governments have therefore forwarded such figures as were available, but experience has shown that the amounts expended on vocational education in agriculture are so inextricably part of general moneys expended either on technical education in general, or on continuation education, or on the whole national educational system, that it is practically impossible to give any separate account of them. On the other hand, statements are often available as to whether fees are charged and especially as to remittance of fees and scholarship systems, and as this side of the question has great practical importance in making a technical educational system effective, such information has been included in the present Report.

Some rather different limits have been set, with a view to convenience and brevity. Thus, specialised courses for the training of forestry and horticultural expert workers are either omitted or very briefly referred to. The answers to the Questionnaire took different views as to whether a description of such courses should be included or not. In any case, a survey of them does not add much to a knowledge of vocational agricultural education. The need for such courses is so evident that they are provided almost automatically, while the portion of the population which profits by them is very small. Dairy and cheesemaking courses are noted when they train for the carrying on of such a trade on the farm itself; but when they train for work in a butter or cheese factory they are mostly omitted.

Courses in domestic science training for women are also omitted, partly, however, for other reasons. Again, the answers to the Questionnaire varied in including or excluding mention of such courses. On the other hand, they have considerable social significance, and are becoming increasingly popular. But they cater largely for the wives and daughters of farmers, not for women wage earners in agriculture, and one of the objects of the present Report is to show what educational opportunities are open to agricultural wage earners (see first clause of the text of the 1921 Recommendation). In these circumstances, and in view of the great number of additional facts which would have had to be incorporated in the national surveys in Part II of this Report if courses in domestic science had been included, it has been thought preferable to omit mention of them. This decision was all the easier in consideration of the fact that two recent publications by the International Institute of Agriculture, Rome, have placed information on this head in the hands of agricultural readers¹.

In general, the present Report deals with the organisation and development of vocational agricultural education, not with its content. No analysis is therefore given of different school curricula except in so far as a brief indication of such curricula throws light on the general purpose and direction of the facilities

¹ INTERNATIONAL INSTITUTE OF AGRICULTURE: *Preliminary Report on Farm Household Management Instruction*. Rome, 1925. 15 pp.

— *Farm Household Management Travelling Schools*. Rome, 1925. 40 pp.

provided or serves to illustrate what significance is really to be attached to such expressions as "the rural bias in elementary schools". It was felt that a scientific analysis of the curricula adopted in the different institutions or countries mentioned would best be handled by authorities other than the International Labour Office. For the same reason, the teaching in institutions of higher, i.e. of academic or University, rank is only noticed in so far as such instruction bears rather directly on the vocational education system of their country; the purely scientific work of such institutions obviously lies outside the scope of this Report.

The amount of material to be handled has been too great to admit of the insertion of details of administration. For this reason it was decided to omit special notice of the training of teachers. It is true that the training of teachers is rather an integral part of the effectiveness of a technical education system and that difficulties are frequently encountered in finding enough teachers or training them adequately. But the general purpose and extension of the national systems are, on the whole, sufficiently described without special mention of this side of the administrative system.

International Exchange of Information : Interest of the International Labour Office in Vocational Agricultural Education

Before beginning our general description of vocational agricultural education, we feel justified in drawing attention to the benefits which have resulted from the international exchange of information and of experience in this field. In no department of public life has more consideration been given to the experience of other peoples, and the result is that the best features of modern vocational agricultural education have been largely copied from one country to another. Indeed, the whole idea of vocational education itself has spread by imitation. Perhaps the classic instances in regard to agricultural education have been the interest displayed by other countries in the Agricultural Academies of the early nineteenth century set up in certain countries of central Europe, in the Danish Folk High School, the German winter schools, the institution of the district agricultural organiser or advisor (county "agent" and "representative") first known in

the United States, thence copied in Canada and other countries, the institution of the farm women's clubs first known in Canada and Belgium, thence copied in England, Scotland, and the British Dominions and in Poland, France, etc., and the institution of boys' and girls' farm clubs in the United States, thence copied in England and the Northern countries. It is worth noting that the carrying over of this particular idea of the boys' and girls' clubs was done deliberately as the result of the initiative displayed by the International Education Board of the Rockefeller Foundation, which, with the consent of the Governments of the Northern countries, especially engaged a person well acquainted with club work in the United States to explain the system and assist in starting the first clubs in those countries. Many other ideas and principles have also, without perhaps any very traceable process of imitation, been adopted in one country after another, so that experiment stations, demonstration plots, school gardens, free distribution of flysheets, itinerant lectures, demonstration trains, and the use of the wireless and cinema are now common to all countries.

At the same time it needs to be clearly stated that the limits of international study are severely set. Apart from the inherent difficulties of comparing educational situations in different countries, it is impossible for the International Labour Office to get behind certain externals. We cannot examine what is the importance of so and so many hours' lecture in a certain subject compared with a different number of hours in another country; we have no means of judging the qualifications of teachers, of checking the value of text books used, of assigning a standard to examinations. Such questions fall outside the competence of the International Labour Office, which chiefly desires to study the social problems connected with vocational agricultural education, and the effects of that education in raising agricultural working conditions or improving the standard of living in rural districts. Our interest concentrates on the education of the wage-paid worker, the smallholder, and the peasant farmer who assists in working his own farm, though it is in practice impossible to separate a consideration of the education of these groups from that of other groups of the farming community; moreover, in an agricultural society one has always to reckon with the passage of members of one social group on to another. Again, the highest

stages of vocational agricultural education offer to the younger sons of the smaller farmers and to an increasing number of agricultural workers, not themselves possessing the capital necessary to independent exploitation, the means of gaining a living in agriculture of a standard superior to that at which they started, and this may in the future constitute an element in rural social progress, and was in fact one of the original aspects of vocational agricultural education which gave rise to the idea of an international investigation. For all these reasons vocational agricultural education is a subject in which the International Labour Office is vitally interested, and we have felt the present investigation to be well worth while.

PART I

§ 1. General.—*Definition and Purpose of Vocational Agricultural Education*

What is vocational agricultural education? If we understand education in general as a conscious and systematic effort to endow a person with such knowledge, understanding and ability as shall make him fit to take his place in human society, vocational education is that part of this process which is intended to qualify him to carry on a specific occupation, in our case agriculture.

But having stated so much, we have only succeeded in putting ourselves face to face with a much larger question : what is the purpose of teaching people to carry on agriculture? The answer to this important question is often taken for granted. It is assumed that it is of advantage to society that land shall produce its maximum and that its fertility shall be safeguarded; consequently it is necessary that cultivation shall be carried on with skill. This view is broadly social, but also utilitarian. The cultivator, himself, it is further assumed, wants to produce as much and as quickly as possible, with the least possible expense so as to secure the largest possible reward; consequently he will profit personally by instruction in the science and practice of his occupation and will presumably welcome such information provided that its advantages can be explained to him. Thus for the individual cultivator also a utilitarian aim is set. If society is to be fed, the cultivator is to be rewarded.

Not quite on the same basis is the idea that agricultural education will keep rural populations on the land and so contribute to a healthy state of society. This argument, while it again

advances the point of view of the community as a whole, does so from a rather less material standpoint. It has played a large part in the advocacy of vocational agricultural education¹. Rather of the same nature is the argument that the cultivator himself, if properly instructed, will have more interest and satisfaction in his work, and greater surety; he will be more master of his fate and less the prey of circumstances. Here again the material standpoint falls into the background. If these arguments are used, that standpoint is replaced, both in regard to the community and the individual, by the idea of function and of the satisfaction which arises by a proper fulfilling of function.

It is possible to go further and to define the purpose of vocational agricultural education as at any rate including "some higher and purer ideal than the sordid quest of practical knowledge"²; this is, wholly to replace material by spiritual ends. How far any form of vocational education is capable of being so interpreted will always remain a matter of opinion; any reality given to such ideal aims will eventually depend on the character and personalities of those who handle this form of education.

A survey of the answers of Governments to the International Labour Office Questionnaire on vocational education as applied to agriculture, together with a review of the available literature on the subject, suggests that there exists a sort of general agreement between educationalists, scientists, and public and private authorities, that vocational agricultural education should mostly have a practical purpose, but should not altogether exclude higher aims. In general, it may be stated that the aims pursued, though not often strictly defined, are very real in the minds of those who advocate vocational agricultural education and are important. The most stress is no doubt laid on teaching the agriculturist to produce so as to secure a larger reward, and the importance of this aim must be kept in mind in reading the

¹ Question 2 of Part B of the International Labour Office Questionnaire is formulated on the assumption that this aim is included in those which impel a certain number of Governments to encourage vocational agricultural education.

² A. B. BRUCE: "A Philosophy of Agricultural Education." "It seems to me, therefore, that we are inevitably driven to the conclusion that, for educational purposes, the teaching of agriculture in our institutions must be infused with some higher and purer ideal than the sordid quest of practical knowledge." (*Agricultural Progress*, London, 1929, p. 100.)

present Report or in reviewing any system of vocational agricultural education.

The Origin of Vocational Agricultural Education

Agriculture has always remained the big general or mother occupation from which all other occupations have separated out by division of labour processes. For centuries it has been the "natural" occupation of men, the progress of which through the generations was so slow as to be scarcely apparent. Knowledge of agricultural processes was thus not more than could be handed on in an empiric way from father to son, and it was not even found necessary to organise an apprenticeship system as in many handicrafts and industries. It was only when the principle of division of labour was applied to agriculture that a demand for vocational agricultural education began to arise. The institution of large-scale farms cultivated as a single technical unit encouraged the creation both of a landless rural proletariat, the farm workers, as also of a group of managers and State officials, farm bailiffs, etc., who, being freed from manual tasks, were able to devote themselves to improvements in farm management. During the eighteenth century, therefore, we find the first attempts to organise special training in agriculture. These attempts pursued two objects, the training of future large-scale farmers as managers of their own farms, and the training of a qualified upper staff, especially foremen and bailiffs. The first type of training was often given at a University or a special high school, the second mostly on farms and was of a very limited and strictly practical nature.

It was only in the course of the first half of the nineteenth century that the application of natural sciences to agriculture opened up possibilities of a type of teaching which might be useful to members of the whole farming community, whatever the size of the holding they cultivated or their position in the industry. Indeed, in many countries generally now considered among the most advanced from the agricultural point of view, it was only towards the end of the century that a system of vocational agricultural education suitable to the majority of persons engaged in agriculture began to be evolved. This process is far from being consummated. Vocational agricultural

education is still largely in course of being thought out in some countries; in others it has not begun; few are the countries in which it can be said to have reached even a first definite formulation. Here lies perhaps one of the main difficulties of vocational agricultural education to-day : it suffers from a certain instability.

§ 2. Organisation.—*General Organisation of Vocational Agricultural Education*

Organised agricultural education falls commonly into certain large divisions. There is first the possibility of including a certain amount of vocational instruction in the curricula of schools giving a general education; these schools may be elementary or secondary schools or continuation classes. In the second place, there are vocational institutions. Practically in all countries a distinction may be drawn between the vocational schools proper and vocational extension teaching, which is the most modern form of agricultural teaching and the purpose of which is in part to supplement the work of the schools. The schools themselves can be classified as giving lower-grade education, intermediate grade education, higher-grade education, or as special schools. All countries seem to possess at least a more elementary and a more advanced type of school, though not in all countries are agricultural high schools or colleges in existence ranking with Universities; however, this is tending to become almost universal. But while some countries do not go much beyond this initial distinction into elementary and advanced vocational schools, so that it is difficult in these countries to speak of a specifically intermediate type of school, in others the grading of vocational institutions is very carefully laid down.

Authorities Controlling Agricultural Education

Like all other forms of education, agricultural education requires public means. Only in one country, France, are we aware of a rather important system of agricultural schools supported by private funds and independent of State assistance. In all other countries the number of private independent schools is insignificant; most of the schools set up by private initiative

make use of the possibility of getting financial assistance from public sources; this, of course, places them in part at least under public control. The way in which this control is exercised varies considerably from a complete set of Acts, Decrees and Regulations to simple administrative action exercised in respect of a certain budget appropriation. Again, some States have preferred to organise the whole system as a State one, others to give subsidies to local authorities (provinces, districts or communes) or to autonomous bodies like chambers of agriculture; or grants are given to private schools, sometimes directly, sometimes expended in the form of scholarships or bursaries. The State can thus either itself assume the obligation of ensuring the existence of a sufficient number of schools, or can put pressure on the local authorities for that end where it aids them financially; but sometimes that pressure cannot be exercised, if it is laid down as a principle that the start in establishing schools must be made on the initiative of the local authorities themselves; in the case of privately organised schools the initiative is necessarily voluntary.

As a general rule, it may be stated that higher-grade agricultural schools either belong to the State or to autonomous University foundations, while lower-grade schools belong to local or provincial authorities, chambers of agriculture, or to private associations or private individuals. But no general statement can be made as to the authorities in charge of intermediate schools, as these vary very much.

Naturally, the general education system in a country comes under the Ministry of Education of that country. It is seldom that, e.g., continuation classes, even those with a strict agricultural bias, depend on the Ministry of Agriculture; this, however, is the case in Prussia, where distinctly agricultural continuation classes are controlled by that Ministry. Ministries of Agriculture, however, control agricultural schools proper of all grades in most countries (not in Denmark), though when agriculture is taught at the Universities the Agricultural Faculty comes under the Minister of Education in common with all the other Faculties. In many countries collaboration between the two Ministries is organised, though it is exceptional to carry it down to cover the work in the elementary schools, as is done, e.g., in England.

The Teaching of Agriculture as Part of a General Educational Curriculum : (a) Elementary Schools

The elementary school system is very similar in all countries where a certain degree of civilisation has been reached; in more primitive countries quite different problems arise, and the following remarks do not apply to countries where a general elementary school system has not been developed for a number of years. In Europe compulsory attendance is everywhere established; the same is the case in the British Dominions at least for the white population; in many, but not all, Central and South American States (but not in Argentina nor in Brazil); in Japan and in Siam. There is also considerable uniformity in regard to the period of school attendance, the normal period being seven or eight years between the ages of six to seven and fourteen to fifteen; in some countries the minimum leaving age has recently been raised, but owing to financial stringency this reform has not yet had full effect.

The elementary school system is so obviously the foundation of all rural and therefore of all agricultural education that this point need hardly be stressed. But it is perhaps peculiarly in rural districts that problems of effective attendance, of the number of hours of instruction, of the quality of teaching become acute, that is to say, more acute than in the towns, where certain standards are usually maintained without too much effort in these matters. A survey of the effectiveness of elementary education in rural districts lies altogether outside this Report, but that effectiveness must be regarded as a cardinal condition for any good system of agricultural vocational education. In their answers to the Questionnaire of the International Labour Office only a few Governments have stated that agricultural instruction is given in elementary schools. A good deal of reference is, however, made to the ruralised curriculum and the rural bias; a full discussion on this topic will be found below¹. Where instruction in agriculture is given in rural elementary schools it is usually confined to the final year or years of schooling; or it is limited to special classes or even to special schools—so-called higher elementary schools—which are not attended by all

¹ See pp. 48 sqq.

children and which are really a half-way bridge between elementary and continuation education.

(b) *Continuation Classes : the People's High School*

The idea which governs continuation education is to give those deprived of any further formal schooling after the elementary school such opportunities as are possible of maintaining intact, and of deepening, the results of their elementary school education. In no case therefore are continuation classes more than a substitute for other education. This perhaps accounts for their very partial and their very varied development. A cursory examination shows very different efforts made in the different countries as regards continuation education in rural districts. In some countries rural continuation classes do not exist, in others are only in process of being started as evening classes; attendance is mostly voluntary, but compulsory attendance at the will of the local authorities is not unknown, or alternatively is enforceable in those districts in which classes are available; in a few cases compulsory attendance is general. It is to be remarked that such compulsory attendance, where it exists, is usually earmarked for those in an agricultural occupation; those in other occupations, or destined for other occupations, are assumed to be otherwise provided for, in secondary schools or by means of apprenticeship, etc. In one case it is stated that youths in an occupation other than agriculture must follow the agricultural continuation classes in their district, unless continuation classes of another sort are also provided.

As a general rule continuation classes in rural districts give an instruction which has an agricultural bias; such instruction is organised "with practical life in view" (Finland); only where there is a strong feeling against giving any occupational bias at all to continuation education is such education confined to purely general teaching even in rural districts. The fact that the pupils at continuation classes have mostly already started on earning their living, that attendance is mostly voluntary or that the very institution of a class is so often a matter for local option on the part of local authorities, makes it natural to try and render the education attractive, and one means of attaining this in rural districts is to link it up with the prevailing occupation of

agriculture. Nevertheless, some authorities feel that an agricultural bias in rural continuation classes should not be carried beyond a certain point; where it is carried rather far (Belgium, France), we really have a vocational school proper. This question of agricultural teaching in rural continuation classes is part of the whole difficult topic of the right relation between vocational and general education, which is discussed at greater length below¹.

The existence or otherwise of rural continuation classes is not a final indication of the educational standards of an agricultural population. Prevalent continuation education may only mean that elementary education ceases at an early age; or other means may have been found to instruct those coming from rural districts. The most important of these is the well-known People's High School, which first came into existence in Denmark, and since has been imitated in the Northern and Baltic countries, in Germany and Czechoslovakia. The purpose of the People's High School is wider and more generous than that of the ordinary continuation class; it should deepen the understanding of its participants for the society they live in. It ought not therefore to be too vocational; indeed, a recent tendency of the People's High School in some countries to become utilitarian is open to much criticism from those who have this cause at heart. Where agriculture is therefore taught in a People's High School it is done on the same simple lines as in a continuation class. The difference is that the students are adults and that instead of a few weekly lessons spread over several years they receive whole-time education for a period of months in a community where they are boarded in companionship with one another (the organisation of urban People's High Schools is different). It is further characteristic of the People's High School that it depends entirely on private initiative and does not lend itself to public management.

Whatever form continuation education may take, it can never give a theoretical training even moderately sufficient from a technical point of view. The real purpose of agricultural instruction forming part of a continued general education should not be to interfere with the adequacy of that continued general education by intruding alien technical instruction, but to stimulate the

¹ See pp. 44 sqq.

energies of the pupil in a practical direction, to rouse in him the desire to learn more (for which his general education gives him the capacity), and thus to become the most important agency in sending students to vocational, especially to lower-grade, agricultural schools and courses.

(c) *Secondary Schools*

The inclusion of agricultural instruction in the curriculum of rural secondary schools is rather a question apart. There are not many such schools; on analysis it will be found that most country secondary schools are really situated in mixed industrial-agricultural districts, and cater for the industrial interests of the inhabitants of such districts. Agriculture seldom forms part of the curriculum; but there are instances where it is taught either to the whole school or in special departments. It is possible to distinguish two types of such schools, those where general education is the main objective and any agricultural teaching of only subsidiary importance, being purely theoretical and confined to advanced classes, and those where the teaching of agriculture is on more practical lines, where the school is really centred in a rural district and has a farm attached to it.

Vocational Forms of Agricultural Education : (a) Lower-Grade Vocational Agricultural Education : its General Character and Aims

We now come to vocational institutions proper. As already stated, these may be classified as giving lower-grade, intermediate, and higher-grade agricultural teaching, and as special institutions; lastly, there is agricultural extension teaching.

Lower-grade agricultural teaching is designed to cater for persons, especially young persons, actually engaged in farming and unable for long to interrupt their efforts to earn their living in this occupation. Its characteristics are cheapness and convenience. It is largely arranged during those seasons in the year when the cultivator can best be spared from his task of cultivation, i.e. during the winter or dead season; it is given at a large number of centres so as to be accessible, is simple in its curriculum, and by no means always implies residence in institutions; it is sometimes even relegated to the evenings.

It is obvious from these conditions that the aims of lower-grade agricultural education must not be set too high. Courses held in the winter can attempt little in the way of practical demonstration, and this is a great disadvantage; more especially at this stage of the farm pupil's development is purely theoretical teaching particularly unattractive. Courses held in the evenings mean that the pupils' best powers are exhausted. The large number of centres to be attended means that a large number of teachers have to be employed, and this means a great deal of inspection of teaching. Nevertheless, lower-grade agricultural education is at the very root of a good vocational agricultural educational system. It reaches just those groups of the agricultural population who need to be reached and who will never be in a position to take any great initiative in providing themselves with instruction in their life occupation. Indeed, it is an essential of lower-grade agricultural education that it should be attractive; it had better be too popular than too learned. In fact, such schools are described by the Governments responsible for their institution or control as designed to give an introductory training in agriculture and such practical knowledge as shall be generally useful to those who carry out the processes of cultivation with their own hands.

The information on lower-grade agricultural education supplied to the International Labour Office, in the answers to its Questionnaire and also from other sources, will be found summarised in Part II of this Report as follows (a few typical statements only are selected):

Lower-grade agricultural schools are referred to as established for "those who wish to be trained in the cheapest possible way for the management of a peasant holding" (Austria), as "especially adapted to local needs" and "intended for young men of seventeen or eighteen years of age" (Belgium), as established particularly for the sons of farmers "who are unable to send their sons to the more expensive two-year schools"¹ (Czechoslovakia), as giving "an elementary education in agriculture adapted to local conditions" (Finland; another type gives somewhat more advanced education), as giving vocational instruction during the dead season to the "sons of farmers who cannot spend two or three years in an agricultural school" (France), as imparting such knowledge "as is capable of direct application to farm work" (Northern Ireland), as aiming above all at "practical instruction calculated to raise local standards of practice in agriculture" (Hungary), as "eminently practical" (Irish Free State), as designed "for the small-holder peasant population" (Switzerland).

¹ These are, however, also counted as lower-grade.

There are several types of lower-grade agricultural schools. The most elementary type is that represented by local (day or evening) courses or local winter courses held once or several times a week either for one or for several winters. Such courses of instruction do not differ much from vocational continuation classes, though as a rule the students are somewhat older and the teaching a little more advanced. Examples are the local courses in England, the itinerant winter schools in France, and the winter classes in Belgium, the Irish Free State, and Northern Ireland.

The most common type of lower-grade school is, however, the winter school giving whole-time daily instruction for a period of four to six or even up to seven and a half months. Such courses may last one winter only or may be continued into the next winter, but it seems generally remarked that a large number of students do not attend the second session; moreover, attendance is often unsatisfactory when courses are prolonged to the time when the spring work has started on the farms. The disadvantages from the teaching point of view of using the winter season only for instruction have already been referred to; some schools arrange excursions for their pupils during the summer, or, where the course runs into a second winter, pupils are expected to spend the intervening summer in farm work, or this may even be organised for them by their school.

One-year winter schools exist in Austria (five to six months), Denmark (five to six months), in England (farm institutes), in Norway (six to nine months in mountain districts), in Sweden (six to nine months). One-year winter schools with organised practice in the ensuing summer exist in Estonia and Finland; in both cases the theoretical course lasts six months. Two-year winter schools exist in Czechoslovakia (six months each year, with efforts to extend to seven and a half), France (four months each year), Germany (Prussia: five to five and a half months each year), Hungary, Latvia, Poland, Sweden, Switzerland (five to five and a half months each year); two- to three-year winter schools exist in the Netherlands.

Distinctly different from the winter school is the lower-grade school giving instruction over the whole year, or over two years, or even longer; the most usual period is between one and two years. It is evident, in general, that lower-grade schools giving two-year courses and admitting only adults verge closely on the intermediate standard.

It is characteristic of these schools, which are able to teach during the summer as well as during the winter, that they all give practical instruction on the school farm. The so-called elementary schools in Rumania make practical instruction quite a predominant feature of their curriculum. Practical instruction bulks largely in the curricula of certain schools in Finland and Sweden and in France, the aim of which is to train not only farmers but especially foremen and bailiffs; this type of school, however, seems to be losing ground, possibly because large estates are beginning to demand more than merely a good practical training from their higher staff. Practical training is given either together with theoretical, or during the summer, or in the year following the year of theoretical training.

It is interesting to note that the age of admission to lower-grade schools of all kinds is not so low as might be expected. True, it is fourteen years in some countries, but sixteen seems to be a more usual age of admission or it is stated that pupils are commonly between sixteen and seventeen years of age. This point is important because it proves that there is a gap for the agricultural population between their exit from the elementary school and their first possible entry into a vocational school, which might well be filled by continuation courses. In the four Northern countries (Denmark, Finland, Norway, Sweden) the system appears to be rather a special one. In these countries the minimum age of admittance to any vocational agricultural school is eighteen (seventeen to winter schools in Finland); in other words, these countries offer vocational training in agriculture to adults only. The gap between the elementary school and vocational training is intended to be filled by practical experience on a farm; indeed, some schools expressly demand such experience before admission, while a few others arrange for such experience on behalf of pupils who do not come from farm life, for which purpose the farms attached to winter schools are very convenient. In general, however, it may be assumed that the arrangements in lower-grade agricultural schools ought to be such as are suited to the agricultural population and not to any other group of society.

Lower-grade agricultural vocational courses which extend beyond the winter session to a whole year or even longer exist in: Austria, Cuba, Czechoslovakia, Denmark, Estonia, Finland, Germany (Bavaria

and Southern Germany), Greece, India, Japan, Netherlands (four years), Norway, Poland, Rumania, Sweden, Switzerland, Yugoslavia; however, lower-grade is not really distinct from intermediate agricultural education in Argentina, Cuba, India, Norway, South Africa, Sweden, or Switzerland, while in Austria the lower-grade schools seem to take on many of the functions of intermediate schools. The following countries notify some form of lower-grade residential agricultural vocational institution: Argentina, Austria, Czechoslovakia, Denmark, France, Germany (Prussia), Greece, Hungary, India, Norway, Poland, Rumania, Sweden, Switzerland. The following countries notify lower-grade vocational agricultural institutions which specialise their teaching or adapt it to local agricultural requirements; Argentina, Austria, Belgium, Czechoslovakia, England and Wales, Finland, Germany (Bavaria), Greece, Netherlands, Norway, Poland, Sweden. The following countries notify some forms of tuition as free in such institutions: Austria, Great Britain (England and Wales and Northern Ireland), Greece, Hungary, Netherlands, Norway, Switzerland: free travelling allowances or part allowances are notified in England and Wales and Northern Ireland. The following countries notify free boarding or part boarding accommodation in such institutions: Finland, Switzerland, Yugoslavia. The following countries notify scholarships or equivalent assistance as available: Czechoslovakia, France, Hungary, Irish Free State, Norway, Poland, Rumania, Switzerland. Correspondence courses are notified in England and Wales and in France.

(b) *Intermediate Agricultural Education: its General Character and Aims*

Intermediate agricultural education does not differ in essential character from lower-grade agricultural education (hence in some countries no line is drawn); but it is a much more serious and intensive training. It usually lasts at least two years, implies somewhat higher qualifications before admission, includes a great deal of practical instruction and nearly always necessitates residence away from the home farm. In fact, it is bound to interrupt the earning career for at least two years, whereas it is the characteristic of lower-grade agricultural education that it can to some extent be combined with earning. Consequently, though both forms of education appeal to the active farming population—owners and tenants of large or medium-sized farms and their sons and daughters, smallholders and peasant proprietors and tenants, wage-paid agricultural workers¹,—yet attendance in an intermediate agricultural educational institution usually implies a better material position of the pupil or of his

¹ But see below, pp. 62 sqq.

parents than attendance at lower-grade courses. It is usual to terminate courses with an examination and to award a certificate or diploma, which is particularly useful to those who enter such institutions for the purpose of becoming teachers or officials connected with agriculture. Intermediate agricultural education also constitutes the minimum training needed for the career of manager on large estates, though higher agricultural education is often desired for such work.

The information on intermediate agricultural education supplied to the International Labour Office, in the answers to its Questionnaire and also from other sources, will be found summarised in Part II of this Report as follows (a few typical statements only are selected):

The instruction given is referred to as "thorough" (Austria), as providing "specialised and complete agricultural instruction" (Belgium), as offering "the highest grade of agricultural education which is of practical importance to the farming population" (Czechoslovakia), as designed to give "fundamental teaching which will put students in touch with modern methods in farming" or, in the case of a woman, which will render her "an efficient partner in the management of a small farm" (England and Wales), as designed to give students "a sound knowledge of agriculture, horticulture, plant diseases, etc. useful for their future careers as farmers" (Northern Ireland), as "highly practical" (Irish Free State), as giving "theoretical and practical training to those who will become farmers" (Poland). In fact, such institutions aim at giving practical comprehensive training in general farming.

The fact that intermediate agricultural schools cater for students who look forward to slightly different careers and who also come at the outset with different degrees of preparation—though in general a secondary school standard is assumed to have been acquired—perhaps accounts for the very various ages of admission and length of the courses given, different countries tending to cater for the particular group of students who seem to them the most important or the most easily secured. Thus the age of admission ranges from twelve, thirteen, or fourteen to over twenty, while the length of courses ranges from less than one year to four years.

Intermediate agricultural schools are almost always provided with good equipment and good farms (though use is also made of neighbouring farms and frequent arrangements exist for enabling pupils to profit by supervised experience on their home farms). As the staff is also normally University—or college—trained they are more expensive to maintain than many lower-

grade institutions and there are fewer of them. In fact, expense deters some Governments from setting up the full number of institutions which they recognise as desirable, and in general the number of institutions giving vocational agricultural training of a true intermediate grade must be recognised as low, if we exclude those of a more elementary type which closely resemble the most advanced of the lower-grade institutions. Certain countries possess either no schools of this kind or only one or two. Nevertheless, it can be argued that if these schools are intended to cater for the needs of a farming population other than the peasants and small farmers, there is a more adequate provision of them than there is of lower-grade institutions; thus the ten schools of intermediate grade in Prussia are nearly sufficient to train that group of the Prussian agricultural community which is destined to farm over 100 hectares. If the contrary view is taken, and it is assumed that the intermediate school exists in order to give the ordinary peasant farmer a maximum training (by contrast with the minimum which he can get in a lower-grade institution), then the number of such schools must certainly be recognised as inadequate to this end.

It is difficult to give a summary of the information collected in answer to the International Labour Office Questionnaire concerning the number of intermediate agricultural institutions or the conditions under which they are organised, owing to the different details of their administration and further to the fact, already mentioned, that in certain countries no administrative distinction is made between lower-grade and intermediate institutions. The number of institutions which are more or less obviously of intermediate grade is as follows: in Argentina 5, Australia 7, Austria 1, Belgium 35, Canada 13 (6 colleges), Chile 5, Czechoslovakia 15, Estonia 2, Finland 3, France 48, Germany (Prussia) 10, Great Britain, England and Wales 15, Northern Ireland 1, Scotland 3 (colleges), Greece 3, Hungary 2, Irish Free State 4, Italy 45, Japan 7, Latvia 3, the Netherlands 24, Norway 19, Poland 8, Rumania 2, South Africa 5, Spain 13, Sweden 67 (but these include all institutions giving lower-grade or intermediate education), Switzerland 35 (the same remark applies). The age of admission varies a good deal, from twelve to fourteen in Belgium and France, thirteen in Japan, fourteen to eighteen in Greece (boarders), to fifteen in Czechoslovakia, the Netherlands, South Africa, fifteen to nineteen in Yugoslavia, sixteen in Chile, Great Britain and the Irish Free State, and sixteen or seventeen in Switzerland, seventeen in Argentina and Poland (but in other schools to eighteen), eighteen in Finland, Norway, Rumania, and Sweden; in Australia students of fourteen to twenty, in Austria of sixteen to twenty-two, in Italy of thirteen to seventeen, in Estonia of over twenty years of age are mentioned.

The courses vary very much in length even in the same country if there are different institutions; they run from ten or eleven months (or even shorter periods) in Great Britain and the Irish Free State, to one year in Germany (Prussia), one and two years in Sweden, eighteen months in the Netherlands and Norway, one, two, and three years in France, one-and-a-half to two-and-a-half years in Switzerland, two years in South Africa, two and three years in Australia, Belgium and Finland, two to three and three to four years in Canada, three years in Estonia, Greece, Italy, the Netherlands (one school), Poland and Spain, three to four years in Chile and Japan, four years in Australia, Austria, Czechoslovakia, Latvia, Rumania and Yugoslavia; but several countries have courses other than those of the length mentioned, e.g. in France one institution gives a five-year course. Previous attendance at lower-grade vocational agricultural institutions is encouraged in Austria, Czechoslovakia, Estonia, Finland, Latvia, Northern Ireland, Norway, Rumania, Yugoslavia.

(c) *Higher Agricultural Education*

In this Report no comprehensive study is attempted of higher agricultural education. The reader will find a certain number of relevant facts in Part II. The number of institutions and departments of higher grade appears to have increased in late years; most countries have now at least one such institution or department. The amount of specialisation attempted is very great and is clearly necessary; more attention has recently been paid to the advanced teaching of agricultural economics¹. Institutions are either regular Faculties or Departments of Universities or connected with Universities, though there are a certain number of independent institutions; practically all encourage research. The admission of students who may have great practical agricultural experience but have not been through the usual secondary school education constitutes a special problem, especially to institutions forming part of Universities; the opposite problem is the training of students who have had excellent general education but no experience of farm work. As a rule, institutions try to safeguard their academic standing and the character of their teaching by insisting on fairly difficult entrance examinations, and in many cases either insist on practical experience or previous vocational training or provide a model farm; it is, however, exceptional that in Denmark admission is given to the Agricultural High School on three years' agricultural

¹ See last pages of Part I of this Report.

practice combined with an elementary school education only. On the other hand, it is also exceptional to make attendance at a previous agricultural vocational institution essential, as is done in Norway, though in some countries certain credits are given to candidates coming from such schools. The completion of a diploma course in two years only in certain countries appears rather inadequate in view of the general claim to University rank of higher-grade agricultural institutions.

The importance of higher-grade agricultural institutions lies in their function of training the staff of intermediate and special agricultural schools and of experts for State advisory and research services in agriculture; the majority of students leaving these institutions seek positions of this kind, though a few will be looking forward to a career in practical farming as managers or owners on large estates.

(d) *Special Institutions*

Institutions specialising in the teaching of some particular branch of agriculture are one of the most successful features of all vocational agricultural education systems. They are usually attended by students who are eager to acquire knowledge and who mean to turn that knowledge to good account when they leave. One of their attractions is that, according to the branch of agriculture to be taught, courses may range from a few weeks to several years, or may even do so in the same branch of agriculture, so that there is plenty of choice for the intending student. Special institutions almost always hold examinations and award diplomas; they usually imply residence, but a particularly useful form of special institution is the travelling demonstration course. This might, however, also be classed as an extension course. Special institutions usually charge fees, but there are some scholarships. A large part of the vocational agricultural education offered to women is given in special institutions.

The teaching in special institutions ranged from introductory courses to advanced technical instruction.

Special institutions or courses are mentioned as existing in animal husbandry, livestock management, shepherding, etc., in Australia, Canada, Estonia, Finland (many different schools), France, Germany, Great Britain (Scotland), Japan, Italy, Latvia, the Netherlands, Poland, South Africa, Sweden (several different schools), Switzerland, Yugoslavia; in dairy work and milk recording in Australia, Austria, Denmark, Estonia, France, Great Britain, Greece, Hungary, India, Irish Free State, Italy, Latvia, the Netherlands, Poland, South Africa; in gardening¹, fruit and vine culture in Australia, Chile,

¹ But see Preface, p. 6.

Czechoslovakia, France, Germany, Great Britain (England and Wales), Greece, Hungary, India, Italy, Japan, Latvia, Poland, Rumania, Yugoslavia; in poultry and bee-keeping in Australia, Canada, Chile, Czechoslovakia, Germany, Great Britain (England and Wales, Northern Ireland), Hungary, Irish Free State, Latvia, the Netherlands, Rumania; in agricultural mechanics or engineering in Australia, Belgium, Czechoslovakia, France, India, Italy, Latvia, the Netherlands, Rumania, Switzerland; in home crafts in Austria, Finland, France, Rumania; in co-operative management or farm management in Austria, Czechoslovakia, the Netherlands; in forestry¹ Estonia, Poland; in moorland cultivation or mountain crops in Italy, Sweden; in grassland improvement in Germany.

Apprenticeship

The Questionnaire of the International Labour Office asked whether, in addition to continuation schools or classes there existed any regulations concerning the training of those entering the occupation of agriculture on instruction farms or by farmers specially selected on account of the efficiency of their methods and the results which they achieve, in other words, whether a system of agricultural apprenticeship existed. The answers show that an apprenticeship in agriculture appears to be exceptional. Practical training almost always takes place at home, though some purely private arrangements are noted, e.g. in England, where farmers take paying pupils. However, in Denmark, it is very usual for the young farmer to get his training not at home but on other farms, often changing his residence each year in order to see different types of farming. The arrangements are in imitation of a system organised by the Royal Agricultural Society of Denmark, which places regular apprentices on approved farms; such apprentices are under the control of the Society and obtain their certificate only on the recommendation of their last employer. In Prussia a regular examination takes place organised either by the Agricultural Society or the chambers of agriculture. A similar system functions in Czechoslovakia, but here it is assumed that training is supplemented by a course at an agricultural school; this is not very different from courses at a vocational school supplemented by a year's practice on a farm. Such courses are found in several countries, but can hardly be considered as apprenticeship proper; nor are they of value to wage-paid workers, as they form part of a rather long training.

Only in France is an apprenticeship system in existence which caters for agricultural workers proper; its extension is, however, limited. For details see Part II of this Report.

¹ Cf. p. 6.

(e) *Extension Education : Its General Character, its Easy Approach, and its Three-Fold Object in Agriculture ; Typical Forms of Agricultural Extension Education ; Communication of the Results of Research ; Other Forms of Agricultural Extension Education ; Short Courses, Tours, Excursions, Exhibitions, etc. ; The Education of Rural Youth (Boys' and Girls' Clubs) ; The Work of Voluntary Bodies ; The Advisory System ; Organisation of Discussion Groups*

Extension education is one of the most important developments of modern education. The name implies the "extension" of educational programmes beyond the walls¹ of a specified institution, school, University, etc. In other words, there is to be a carrying over of knowledge from a smaller group of instructed persons to much larger and less instructed audiences; indeed, extension education is not inadequately described as a sort of missionary effort.

It is assumed that those who are about to profit by extension education are in the main otherwise occupied than by their educational efforts; consequently, shortage of time prevents them from undertaking that true educational progress which consists in the slow discovery of principles on the part of the pupil himself. However, the stimulating effect of extension education is in itself highly educational. Another characteristic of extension education is that it is rather informal. Above all, it is either free or so cheap as to be within the means of all; it is brought almost to the student's doorstep, so to say; it requires only a little initial effort from students and never embarrasses them at the outset by placing any value or mark against their relative intellectual capacities.

It is clear from the experience of the last twenty or thirty years that the possibilities of extension education among rural populations are unrivalled. The complete absence of any suggestion of compulsion—its "take it or leave it" character—particularly appeals to such populations, to whom the compulsory principle in education is, for many reasons, not always thoroughly acceptable². Its easy approach does not outrage the shyness

¹ Cf. also the designation "extra-mural".

² Cf. the evidence of the English agricultural workers, in the Memorandum referred to on p. 52 of this Report, as to the continued unwillingness of the English rural working classes to send their children to school; on the general point raised see § 3, Sections III and IV, below.

and diffidence so characteristic of rural populations, nor does it evoke their distrust and suspicion. Indeed, agricultural extension education is remarkable in the way it appeals to all ages simultaneously. It has solved a problem which no other form of agricultural education has been able to touch, the instruction of the adult peasant already engaged for many years in farming, who, by reason of his long practice, deficient general culture, scant leisure, and above all by reason of his being entrenched as a little master in his own kingdom, was inaccessible to new ideas.

The general success of agricultural extension education—a success which is practically universal throughout the world in countries of the most varying conditions and degrees of culture—is partly accounted for by its simultaneous pursuit of three objects. As already stated, it supplements the work of agricultural schools and institutions by supplying with instruction that part of the adult agricultural population which can never be expected to visit such places. In the second place, it can also serve very effectively, though differently, in rousing individuals or groups to make a start in seeking a first modicum of instruction; later, such persons feel the need of something more and find the agricultural school waiting for them. In the third place, it acts as a “follow-on” education, that is, it rapidly circulates to those who are already well instructed in the knowledge and technique of their occupation information on new developments and new scientific discoveries.

The aims pursued by agricultural extension teaching being three-fold, it is not surprising that the forms taken by that teaching should be various. The reader of Part II of this Report will find that nearly every country has some characteristic feature to show in its extension teaching. We are well aware that in regard to extension education this Report is specially incomplete, the informal and often decentralised character of that teaching making it very difficult to collect exhaustive information. The somewhat brief remarks allotted in Part II to a description of extension teaching in the various countries must not be taken as any indication that a lack of importance is attributed to such teaching; on the contrary, this form of agricultural vocational education appears to us to be of primary importance; for though the instruction given may sometimes appear almost rudimentary, it reaches a larger proportion of the agricultural population than

is approached by any other means. But just because extension teaching includes, as already indicated, the pursuit of several different objectives, not every form of such teaching is by any means addressed to all members of the agricultural community.

It is permissible to give first place to a particularly striking form of extension education, namely, that which was defined above as a "follow-on" education, and which consists in the rapid popularisation of results of scientific research useful to agriculturists. This communication of new results can, however, only be made to those capable of appreciating them, namely, to farmers who already have a mind open to the value of new knowledge; as a general rule, this means to farmers who have at some time in their lives profited by some vocational instruction.

This form of agricultural extension education is particularly promising. The widespread, practically gratuitous, communication of the very latest results of scientific speculation to the members of a large social group is unique in the industrial organisation of modern occupational life. Intellectual stimulus is often combined with a reasonable prospect of financial benefit. Agricultural extension teachers, when addressing instructed audiences on some new method, make a point of analysing the financial gain to be won thereby. This policy is, of course, right. It is reasonable to appeal, in teaching the conduct of a business, to business instincts. Again, the methods advocated must have been thoroughly tested; tentative results should never be brought forward. It is unfair to extension pupils to assume in them the practice and training which enable the research worker to face only probable truths. It is further to be recommended that when extension courses are first introduced they should handle a few proposals which are very easy and striking; one visible demonstrated success of a pupil is worth many pounds of flysheets in that neighbourhood.

However, when confidence has been established between teacher and pupils the former need be less anxious to advertise his goods, for they will sell themselves. The rich results attained by modern research are a great asset to the agricultural adviser; he always has plenty of good new material and can draw many inspiring lessons from the progress of science as applied to agriculture.

From the point of view of the community, the vast size of the agricultural industry means that the application of only a minor improvement may advance production by millions of pounds. This fact is constantly made use of by public and private authorities in advocating the expenditure of money on agricultural research; such research, it is stated, whatever its initial cost, pays itself over and over again in hard cash within a very few years. But in that case it is necessary that it should be adopted on a wide scale; the argument then becomes an argument in favour of vocational agricultural education as the best means of communicating the results of research to the agricultural community.

The position of research as such in national administration lies outside the scope of this Report; it is a problem which involves many important questions as to the right relations of the individual carrying on the research to the community and as to his proper remuneration.

A particularly interesting development of extension education in close connection with agricultural research is the system of "illustration farms" in Canada. The illustration farms, which are privately owned profit-making farms and quite distinct from the experimental stations owned and managed by the Federal authorities, serve as an interim demonstration and testing centres for recent results worked out at the experimental stations; the "illustration" farmers grow crops from special seed, supplied to them by the stations, or test new fertilisers, etc. This development of teaching by advanced practice seems to open up new possibilities, because it secures the active co-operation and self-help of the farming community, which thereby becomes an actual partner in the work.

There are further to be considered the many forms of agricultural extension education which cater for the general agricultural population, and for all ages in that population. The technique of such education is a study in itself. Every principle which has been evolved in relation to good propaganda¹ — and even in relation to good advertising — is applicable to this form of education. Thus it is recommended that at first small concentrated doses of instruction be given at well-thought-out intervals, not too close together so that pupils should not feel hurried or unable to apply what they have learnt (this is very important), and not so infrequently that all the business of rousing interest has to be gone through again. As regards this point, there is a certain broad difference between those short courses, where attendance at any rate on three or four following occasions is expected, and those forms of instruction which literally require no effort beyond that of apprehension of the subject matter presented on the particular occasion. Short courses, lasting a

¹ FONDARD : *Essai sur l'éducation paysanne*, p. 182.

few days or even a few weeks, are not altogether different from certain courses classed as regular lower-grade vocational institutions, except that when offered as part of an extension teaching system they are apt to be attended by persons of various ages instead of by younger students only and are frequently rendered still more accessible by being made itinerant. But other courses are finished in a day, and there are a large number of simple lectures or very short sets of lectures arranged, besides "rural weeks" and "rural days", which combine an appeal to other sides of their auditors' lives; or again, from a rather different point of view, instruction is combined with a certain amount of pleasure or a little mild excitement. Shows and exhibitions, travelling demonstration trains, excursions, regularly organised travelling tours, competitions, libraries (stationary or circulating), apart from the more elaborate efforts implied in model farms, experimental stations, demonstration plots, and apart from all the means offered by means of printed journals, pamphlets, posters, and flysheets (much advocated) are used in every conceivable form in order to secure that easy approach to knowledge to which reference was made above as characteristic of extension education in general. Lately, much has been done in order to take into service the modern technical means of the cinema and radio.

A very striking form of agricultural extension education is that addressed to rural youth. Boys' and girls' clubs, also known as Young Farmers' Clubs, are the most modern of all the attempts made to get hold of rural populations in the cause of education, and the movement for such clubs bears rather close analogies to the boys' and girls' scout movements, with the growth of which, indeed, it has been more or less contemporaneous. Boys' and girls' clubs are formed as very small local groups, often in connection with an elementary or other school. Each child is given a "project", i.e. some definite, but manageable, *practical* task to carry out, e.g. the rearing of a calf, of a pig, the growing of a small crop of peas, etc. The supervision of the projects is in the hands of an efficient leader or organiser, very often the agricultural adviser referred to below. It is usual to ask the parents of the children to provide the animals or ground and seeds necessary, and it is again a feature of these clubs that the children are taught to look after the business side of their

projects, to reckon costs, profit or loss, and to keep any gains which may accrue. Thus commerce and science are learnt together, and club work is an admirable introduction to general farming life. Incidentally, it has been found that the teaching of the children is often a bridge to the teaching of the parents, who first become interested in the efforts of the local extension teacher owing to their children's success. These clubs are proving most successful in the countries where they have been introduced. Reference was made above¹ to the work of the International Education Board in carrying over the idea of these clubs from North America to Europe.

We stated above² that agricultural education could not be administered without public moneys. This holds true of agricultural extension education as of all other forms of agricultural education. Nevertheless, the simplicity and cheapness of many forms of agricultural extension education make it much easier for private initiative to display activity in this field than in the setting up of agricultural schools proper, while the need for counting on such private interest and initiative, which can hardly be remunerated, causes the State to exercise its control in a much less formal way than is necessary in the case of other forms of education; the participation of the State is thus frequently confined to the giving of grants for extension work to well accredited bodies; these grants are sometimes in the form of teachers' services or the use of official premises or material.

In some countries, however, the administration of extension work is in the hands of a special corps of State-employed advisers (also known as agricultural directors, organisers, agents, representatives). The agricultural adviser, who is a Government official or employed by some authoritative body or society, is either an expert on general agriculture or on some special subject such as soil improvement, stock-breeding, etc. He may either come to the farmers on his own initiative, making regular tours throughout his district, or only come when requested, or be available at certain points (in his office; in Belgium on market days at certain local markets); he may be singlehanded, or understudied by a large staff of assistants. But the essence of the

¹ See p. 8 of Preface.

² See p. 14.

system is always the same—first-hand advice on the spot to individual farmers.

The relation of the agricultural advisers to the agricultural vocational schools is various. The agricultural schools are the educational centres of their districts and naturally play an important part in the organisation of extension work. Sometimes the adviser (or director) is the superior officer, and entitled to call on the staff of agricultural schools to assist him in extension work; sometimes the staff of agricultural schools direct the extension work; where winter schools exist the use of the teachers' time in extension work in the summer is particularly happy. The most interesting systems are those which give the agricultural adviser a broad scope, where he takes part in the administration of agricultural matters in general in his district, inspects and supervises agricultural teaching in non-agricultural schools or even the administration of certain agricultural legislation; thus he truly earns the title of "organiser" or "representative" and becomes a very important official whose ideas may have considerable influence on local agriculture.

Compared with the agricultural schools, the activities of experimental stations in assisting in extension teaching are of minor importance; the research staff there employed often lack training in popular teaching methods. But in two countries, Canada and Scotland, all agricultural education, including extension education, has been very successfully organised from the Agricultural College as a centre, and this has had the effect of bringing extension teaching into closer touch with advanced research than can be done on any other system. On this system the men who research and the men who carry the results of research to the agricultural population are actually members of the same institution and responsible to the same head or director.

Where agricultural advisers are experts in special subjects, their districts are much bigger (perhaps the whole country), and individual visits are out of the question. In such cases the general advisory system is often in the hands of staff employed by large agricultural associations who, as already stated, receive grants from the Government. A few associations are formed exclusively for such purposes, and there also exist a certain number of associations of ex-students of agricultural colleges, etc., formed in order to keep their members in touch with modern progress.

The International Labour Office Questionnaire especially asked whether employers' or workers' organisations had developed any activities in promoting vocational agricultural education. The answer was as a rule in the negative, though it was sometimes stated that they encouraged their members to take advantage of existing forms of teaching; in a few cases organisations of stock-tenders had been formed to improve the standard of their members' skill, and one instance is noted in Austria where a workers' trade union has actively associated itself with a general agricultural organisation in order to promote a course in advanced milking.

On a rather different footing is the organisation of small discussion or study groups, either independently or in connection with such bodies as farmers' clubs, farm women's clubs, women's rural institutes, etc. In certain countries stress is laid on the need for some organisation, however slight, among the auditors of any agricultural teaching other than the strictly occasional; the waste of effort involved and the loss of interest sustained in the absence of any continued associated effort among the students is held to be thoroughly harmful. An existing group of students can be treated as the nucleus of a more permanent association by assistance given to them to organise themselves as a simple discussion society with a local secretary. The democratic character thus given to the administration of agricultural extension teaching is interesting, and thoroughly in conformity with the nature of the knowledge which it is sought to distribute, which is a knowledge attained by publicly financed research on behalf of the whole rural community.

*Extent of Vocational Agricultural Education in Rural Districts;
Numbers of Those Benefiting by It*

Some attempt must be made to sum up the number of persons in rural districts benefiting by vocational instruction. Apart from the question as to whether any choice of technical training other than an agricultural training should be offered to such country populations—an intrinsically important matter—we are compelled to admit that vocational agricultural education is itself

inadequate in that it reaches far too few members of the agricultural community.

The situation seems to differ a good deal from country to country and also according to the type of agricultural education in question. While it is possible to some extent to measure the reception given to agricultural education of a more or less systematic kind, such as winter courses, intermediate-grade agricultural schools, etc., by means of recording the number of pupils attending such courses or lectures, it is impossible to compute with any degree of accuracy how many persons have benefited by the manifold forms of extension education : yet the impression is strong that it is in extension education that the greatest progress has been made. A complete view of the situation in the different countries cannot be attempted, let alone a comparative international survey. But in answer to questions in the International Labour Office Questionnaire some information has been forwarded.

A rough way of reckoning would perhaps be as follows. The average number of students annually leaving all agricultural institutions¹ where something like whole-time training is given, even if only for part of the year, is the basis; provided that is known, and the occupational life reckoned at thirty years, the total number of systematically trained agriculturists entering the agricultural industry may be contrasted with the total number of new farmers entering that industry each year. But such a calculation is very much interfered with, first, by the fact that the number of students leaving agricultural institutions becomes artificially exaggerated because it necessarily includes those who are only passing from one institution to another and because a certain number of students leaving take up the teaching and not the practice of agriculture, while a few enter quite other professions, and secondly in that more than one trained person, e.g. employer and worker, may be found on one farm. Finally, the calculation is very imperfect in another way, because it cannot cover the training given by extension education, the effects of which, indeed, as already stated, seem to elude any reasonable computation. Still, if such calculations are roughly estimated the results show that while in a very few countries (Denmark, Norway) one out of every three or four persons (farmers, managers) entering the agricul-

tural industry is trained, in another (Prussia¹) one out of every five or six, in yet other countries (Finland, Switzerland) perhaps one out of every eight, in some countries, especially the newer countries (Estonia, Latvia) we come down to one out of every thirteen or fourteen persons occupied as chiefs of enterprises on agricultural holdings, while in France² the proportion sinks to one out of every thirty-five or forty.

Indeed, the spread of vocational agricultural education has been so rapid in the last few years that, even without the initial objections to such estimates already set forth above, it may be argued that many of the figures given are very little representative of what will happen in the near future. But *at present* it is unfortunately only too clear that a mere fraction of the agricultural populations are trained in a knowledge of the occupation which they pursue, except, indeed, intermittently by the efforts of extension teachers.

Attendance at systematic courses.—In Austria 1,396 persons of male sex left agricultural institutions in 1927 out of an agricultural population comprising about 500,000 farmers; in Belgium 2,000 persons annually finish an agricultural training out of 214,000 male farmers; in Canada 1,214 students were following longer courses at agricultural colleges or Faculties in 1923-1924, and about the same number shorter courses; in Czechoslovakia it is estimated that five-sixths of the children of the rural population do not attend a vocational school; in Denmark about 16 per cent. of a certain year's class of all rural youths were estimated to be at agricultural schools; in Estonia about 300 persons train themselves annually to be distributed over 127,000 holdings; in Finland 1,120 persons, exclusive of those at the University of Helsingfors, are trained annually out of 250,000 male farmers; in France not more than 2,500 trained persons are estimated to enter the agricultural industry each year; in Germany about 35 per cent. of all farms over 5 hectares in Prussia and about 26 per cent. of such farms in Bavaria may have one trained person on them; in Great Britain (England and Wales) about 700 students leave agricultural colleges and 900 students attend farm institutes each year, to be distributed over about 400,000 holdings; in Scotland about 100 persons finish a college course each year out of 31,500 farmers and 15,000 crofters (smallholders); in Greece 60 students attend lower-grade, 100 intermediate grade, and 85 higher-grade agricultural schools on an average; in the Irish Free State only 75 to 80 per cent. of the existing training accommodation is used; it is calculated that if all farmers cultivating over 15 acres were benefiting, the number training would

¹ This figure itself has to be calculated (unless expressly stated) by dividing the average number of students in attendance by the number of years in the course.

² Excluding holdings under 2 hectares.

have to be five times what it is now; in Italy 1,295 persons were attending a special type of intermediate school and 992 were attending higher agricultural institutions in 1926-1927, but this takes no account of those attending other intermediate schools and itinerant classes; in Japan 55,000 pupils were attending lower-grade schools and 2,287 pupils intermediate schools in 1926; in Latvia 500-600 boys pass out of the agricultural schools annually (not including the University of Riga) to be dispersed over 200,000 peasant holdings; in the Netherlands 800 students are stated to complete some form of vocational agricultural education each year and are distributed over 109,000 farms of over 5 hectares; in Norway of 4,000 or 5,000 persons needed year to replace the wastage in the agricultural industry about one-quarter are trained; in Rumania a little under 1,000 students complete their training at agricultural schools each year to be distributed over 200,000 holdings and another 350,000 smallholdings; in Sweden the number of students leaving the farmers' schools each year is 900, to be distributed over 90,000 holdings over 10 hectares, not to mention smallholdings; in Switzerland it is estimated that, if the present attendance at vocational schools is kept up, about 1,200 farmers will be trained over 10,000 holdings.

Attendance at extension or other not whole-time courses.—In Austria the total number of persons attending extension courses was 4,477 in 1927; in Belgium 47,355 persons attended extension courses in general agriculture in 1925-1926, apart from special courses; in Canada short courses were attended by 27,000 persons in Saskatchewan in 1923-1924 and work was carried on a similar scale in other provinces; in Czechoslovakia 4,152 persons attended short courses in 1920-1921, apart from many other forms of extension education; in Estonia 57,840 persons attended short courses in 1925; in Finland short courses of a few days' duration are attended by more than 10,000 persons; in France 238,460 persons attended lectures in 1920-1921; in Germany nearly 35,000 persons attended short courses in 1911 in Prussia and to-day the number is estimated to be at least five or six times as many; in England and Wales it is estimated that the instruction given in local extension courses gives some agricultural knowledge to about 10,000 persons annually; in Scotland weekly agricultural classes are followed yearly by about 8,000 persons; in Hungary 72,500 persons attended extension lectures in 1923; in India (excluding the Native States and the Punjab) 36,670 practical demonstrations were carried out in 1927-1928; in the Irish Free State there were 65,853 attendances at extension classes in 1926-1927; in Italy 84,818 persons attended the peasants' courses in 1927-1928; in Japan 1,190,000 persons were attending extension courses for a period longer than five days at the end of 1922; in Latvia 16,231 farmers were visited by the agricultural advisory staff in 1926-1927; in the Netherlands the number of students attending advisers' courses in 1927-1928 was 34,203; in Norway half the agricultural population is estimated to benefit from the extension system each year; in Switzerland 246,025 persons attended extension courses in the canton of Zurich alone over the period 1885 to 1923. These figures, however interesting, do not give any adequate idea of the large amount of extension and propaganda work being carried on in practically all countries.

§ 3. The Problems of Vocational Agricultural Education.

—Problems of Three Kinds : Administrative, Teaching, and Social ; Special Attention Directed in this Study to the Social Problems connected with Vocational Agricultural Education.

The previous section has given the reader a fairly comprehensive sketch of the nature and organisation of vocational agricultural education; for further details he is referred to Part II of this study. For purposes of convenience that section was kept purely descriptive, but the reader will have realised in going through it that a certain number of problems arise in connection with such education; some of these will be dealt with in the present section.

Broadly speaking, such problems are of three kinds, administrative, teaching and social. The choice between an Education and an Agriculture Department as a final authority in matters of vocational agricultural education is an example of an administrative problem (and a difficult one) in this sphere, while the desirability or the reverse of allowing persons not themselves fully trained as agricultural experts to give some of the more elementary agricultural teaching is an example of a teaching problem, as are all questions of curricula, which are obviously very important. The International Labour Office is not directly interested in these problems except in so far as they have also a social side or affect the efficiency of the teaching given. In the present study therefore we propose to concentrate on certain social and economic problems and to consider certain teaching problems in so far as they are connected with a broader social aspect of agricultural education.

I. THE LIMITS OF INSTRUCTION.—*Vocational Agricultural Teaching not Properly Speaking Scientific; the Minima and Maxima of Teaching Set by a Consideration of what Knowledge is Useful; Continuous Adaptation of these Limits Set by Advances in Science and also by Contact with Fresh Groups in Rural Society; the Amount of Practical Experience outside the Vocational School to be Required of Students*

We stated above that the purpose of vocational agricultural education was to train persons to carry on the occupation of agriculture. The first problem to which we wish to draw attention

arises out of this purpose, which we defined as utilitarian. It concerns the content of that education.

In principle, there can be no dispute as to the content of vocational agricultural education; broadly speaking, it must be agriculture. It must not be science. It is necessary to make this clear because science and practice are so closely bound up together in modern agriculture that it would be natural to assume that practical processes could not be properly carried out without understanding of scientific principles. To some extent this is true, and vocational agricultural education must, in the words of the answer of the French Government to the International Labour Office Questionnaire, even in its initial stages "embrace those scientific aspects which no cultivator can understand merely by the practice of cultivation". Indeed, a number of courses in the different countries are arranged solely with a view to giving instruction in theory. But this is not the same as a scientific education proper.

This at once places a limitation on the content of vocational agricultural education. A large number, indeed most, scientific truths must be assimilated without any attempt at following out the processes by which they are arrived at, i.e. they must be taken over as ready-made results. There is really no avoiding this necessity in agricultural teaching. The more elementary the teaching, the younger the pupil, or the shorter the time he can give, the more definitely is the teacher bound to fall back on such ready-made knowledge together with such broad indications of principle as time and his own knowledge allow. He can never attempt a comprehensive study of the fields of botany, chemistry and biology, and his teaching therefore must unavoidably lack the mental stimulus given by the study of great fundamental principles. On the other hand, it gains very much by being vivid and applied to concrete facts and important daily realities. If it did not do this it would really have no mental appeal at all and perhaps it may be stated that bad vocational teaching is among the worst teaching in the world.

In rejecting any ideal of teaching scientific truths as such and in limiting itself to training its students in knowledge of agriculture, vocational agricultural education is following a definite industrial and social, and not a pedagogical, purpose. This becomes even clearer if we consider what are the minimum and

the maximum limits of the agricultural teaching to be given. A minimum limit is set because the knowledge communicated must be directly applicable in practice by the student himself; anything that falls short of that is fairly useless. For instance, it is not enough to be taught that fertilisers have a great effect on crops or even to have considerable teaching on the theory of fertilisers : unless the student can also be taught how to judge the quantity and quality of fertilisers needed for the fields which he has to cultivate, he has learnt less than he ought. In the same way, he has learnt too little if he does not recognise the moment when he must call in the veterinary surgeon to attend to his sick beasts, even though he may himself have some knowledge of the nature and course of the disease from which they are suffering. On the other hand, it is just as useless to learn too much. The detailed knowledge of animal diseases he may as well leave to the veterinary surgeon whom he calls in, and the same principle applies to any pretence at knowledge of the advanced theory of soil bacteria. In fact, it is nowadays impossible for the farmer to become a specialist in the many operations which make up farming, and the first lesson of vocational agricultural education is to drive this point home.

But a special difficulty arises because, while such minimum and maximum limits to the content of agricultural education appear at first sight clear in principle, they are, in practice, always shifting. This follows from the progress of scientific discovery, a progress which now absolutely dominates the industry of agriculture and of which the rapidity is raising peculiar industrial and social problems. Teaching on fertilisers is a particularly striking example. The future farmer will very likely know more in general, for example, about fertilisers than his father, but he will not be able to act without the expert's advice as he did, owing to the extraordinary complexity which knowledge of this subject has now assumed. As similar advances take place in every department of research, the amount of knowledge which can be conveyed to the ordinary farming community is bound to bear a constantly different relation to the whole body of scientific knowledge about agriculture. Thus the problem of the content of vocational agricultural teaching is never finally solved. It requires a process of continual adaptation. If on the one hand science advances in complexity, on the other the general

intellectual capacity of agricultural populations improves. The agricultural teacher has to keep one eye on the experimental farm and the other on the state of rural society.

It is the last that matters, and in the subsequent paragraphs of this section we propose to view vocational agricultural education in its relation to the structure of rural society and as a formative element in that society.

A special difficulty which arises in settling the curricula of vocational agricultural courses is the amount of practical instruction to be given, and more especially the amount of practical experience which is required outside the vocational school before or during training. This question has a pronounced social bearing, as it vitally affects the groups who will be in a position to seek vocational agricultural instruction. From the teaching point of view it is at once essential to guarantee the pupil's subsequent practical efficiency, but not to waste precious hours of instruction in teaching farm-bred boys and girls what they have already learnt at home (though here it may be observed that even farm-bred boys and girls are often quite unaware of the best practices). But not all pupils are farm bred; some are only country bred and have no very precise idea of how to handle more than a spade and a hoe. Another aspect of the problem, however, arises out of the danger of excluding possibly excellent students coming not from country but from urban surroundings. These, from every point of view, would be most valuable recruits to agriculture. Efforts are therefore sometimes made to allow the entry of such students, especially by preliminary courses or by permitting the acquisition of practical experience during the time of training. But, on the whole, vocational agricultural institutions are so largely recruited from groups of the rural population whose acquaintance with farming practice may be assumed, that most schools are able to lay down fairly high standards of practical experience for entry.

In Austria lower-grade agricultural schools are attended chiefly by those who have already had a certain practical experience in farming, while in the intermediate school one year's previous practical work is required before entry. In Finland a special system obtains; all students who wish to profit by vocational agricultural education courses must spend some time in residence on an approved farm as learners; in 1927 there were 362 such approved farms, where nearly 700 students had been resident; in general, the requirements as to practical experience are most carefully laid down, more experience being required before admission to, or in the course attendance at, higher courses; e.g. in order to obtain the higher agricultural diploma at the University of Helsingfors students must show that they have actually managed a farm for at least a year. In England at one agricultural college students must reside a complete year at a farm after leaving and prepare a report on the management of such farm before qualifying for a diploma. In Northern Ireland students presenting themselves for a University scholarship at Belfast must prove that they have had practical experience of agriculture as practised in Northern Ireland. In Scotland students for degree and diploma

courses at an agricultural college must have had one year's farming experience. In Latvia three years' practical experience must intervene between passing out of an intermediate agricultural school and obtaining a diploma as agricultural expert. In Norway students at the winter agricultural school at Oslo must have had either two or four years' experience in agriculture according to the courses to be followed; students at the High School of Agriculture must have had two years' experience. In Poland students of intermediate schools must have had one year's experience before entering or must interpose one year's experience between passing out and taking their diploma according to the type of school attended. In Sweden students at agricultural schools must have had one year's experience, and those at farmers' schools a certain amount of experience; students at higher institutions must have had at least two years' serious experience. In Switzerland students at winter schools must have had some practical experience, but no specified period is laid down; some, but not all, agricultural schools also demand experience, but in general these schools are specially suitable for those who have not grown up in agricultural surroundings; a year's practical work in agriculture also assists students who wish to attend the Agricultural High School at Zurich. Information on countries not here mentioned will be found in Part II.

A great many institutions, however, lay down no hard and fast requirements. Teaching is adapted to the fact that students come from agricultural surroundings; this is specially the case with lower-grade winter courses, where it may be taken almost as a matter of course that students come from farms. In other cases great attention is given to providing a large amount of practical teaching (this is done even when previous experience has been a requirement before entry); more especially do institutions of intermediate grade lay great stress on practical instruction and usually have farms attached; the assumption undoubtedly is that on leaving such institutions students will usually assume positions of some responsibility in farming and moreover are not likely to have any opportunity of further training. As regards training at higher-grade institutions, which usually leads to a somewhat different career, practice differs a great deal. Certain Universities neither require practical experience nor provide facilities for it. The reader is referred to Part II of this Report for details.

II. THE RELATION OF VOCATIONAL TO GENERAL EDUCATION IN RURAL DISTRICTS.—*Insufficiency of General Education among Country Populations; Attempts to Ensure a Certain Standard of such General Education before Admittance into Vocational Agricultural Institutions*

It is frequently stated that rural populations are badly educated, and badly educated means not only badly instructed from the intellectual point of view, but also that human and social qualities are badly developed¹. It must be admitted

¹ The state of rural populations is "relatively inefficient and undeveloped as compared with the best urban conditions . . . not what it is capable of becoming" (BAILEY : *The Training of Farmers*, p. 4).

that both vocational and general education have been inadequate in rural districts, though in different ways.

Great improvements have taken place in the last forty or fifty years in general education, and the principal cause has been beyond doubt the cumulative effect of imposing compulsory elementary education. But this compulsory formal whole-time education stops in all countries at a certain age, usually thirteen or fourteen. It is admitted that the age when a boy or girl thus ceases to receive a formal schooling bears little relation to its real capacity for being educated; on the contrary, the years fourteen to sixteen, seventeen or eighteen are perhaps the most receptive of intellectual impressions, the human mind not attaining an ordinary maturity until the near approach of manhood or womanhood. The decision which imposes this early cessation of instruction on the larger number of the inhabitants of modern States is therefore artificial. Intellectual starvation between the ages of fourteen and eighteen is one of the strangest disabilities which modern poverty still imposes on society. The decision is accepted because it is at present a practical necessity, but it does not hold for wealthier groups of the population. Prolongation by several years on behalf of all classes of some form of whole-time education (whatever the type of that education) would be the most striking addition which could well be made to the moral and intellectual well-being of nations in modern times. On this foundation vocational training could proceed with satisfaction. But present systems of vocational instruction, agricultural as well as industrial, are founded on the contrary assumption that general and whole-time compulsory schooling will end at about fourteen. Consequently, we must accept the fact that vocational training has necessarily to be superimposed on an *incompleted* general training of the human mind; this inevitably produces something rather lame.

The difficulty is particularly important in regard to vocational training in agriculture, because country children always receive the minimum of the present-day allowance of general education. There are many reasons; for instance, the best elementary school teachers get attracted to the towns, and so on. The actual organisation of the curricula of lower-grade vocational agricultural institutions is in itself a confession that the general education standards of the pupils presenting themselves is so immature or

even so definitely poor that means ought to be taken to give them further general teaching simultaneously with vocational teaching; nearly all lower-grade agricultural schools give such instruction. In intermediate schools attempts are made to ensure that at least a somewhat higher standard of general education shall be attained before vocational instruction is sought; where vocational instruction is given at considerable public expense, e.g. in resident institutions, it is of obvious importance to see that it is not wasted on those unable to profit by it. Higher-grade agricultural educational institutions often make efforts to ensure a University matriculation standard.

On the whole, the effort to secure a specified standard of general education before admittance to vocational courses is a marked feature of modern vocational agricultural education. It is only too obvious that lack of sufficient general education does much to prevent the optimum results from vocational courses¹. This is all the more a pity because the comparatively late age of entry even to lower-grade agricultural institutions should allow plenty of time to prepare the pupils' general education, nor in such institutions is any previous education required such as ought to be beyond the capacity of a really good elementary school to provide².

Specific mention is made in the answers of the following countries to the effect that *general subjects* (usually essay writing, study of the national language, arithmetic or elementary mathematics, drawing) are included in the curricula of *agricultural continuation courses* or *lower-grade agricultural schools*: Austria ("the purpose . . . is to give general education and preparatory vocational training . . . in continuation of the work of the elementary It is intended to make these schools permanent centres for popular education and at the same time centres for advisory agricultural work"); Belgium ("it has often been felt that the preliminary education of the pupils attending these schools (winter schools) was not sufficient to allow them to follow with success the vocational instruction given, and it has therefore been necessary to include some general education in the course until such time as it can be assumed that the majority of the pupils have previously attended a vocational continuation course"—the latter includes some general instruction); Czechoslovakia (continuation classes "aim . . . at continuing the child's general education

¹ Cf. F. ACROBOE: *Agrarpolitik*, p. 308. Berlin, 1928. 619 pp.

² One real difficulty is that, if a long interval elapses between the termination of general and the beginning of vocational education, the boy or girl forgets a good deal. The daily life of a junior worker on a farm does not as a rule give any practice in writing or arithmetic.

from the last grade of the elementary school awards" as well as at preparing the child for practical life; much the same applies at present to lower-grade agricultural schools, but the idea is to make some form of continuation general education compulsory for country children so as to ensure a certain standard before entry into a vocational school); Finland (continuation education is compulsory); France ("the majority of teachers who have been successful with these courses (i.e. vocational continuation courses) have been induced to give them both a general and a vocational character"; general subjects are also given at lower-grade agricultural (stationary schools)); Hungary (arithmetic, writing and Hungarian taught in lower-grade agricultural schools); Norway (general education in lower-grade agricultural schools has been enlarged; an alternative suggestion was to abandon general education in these schools but to demand a higher standard therein before entry (attendance at young people's school or people's high school)); Poland (part of the time in the "eleventh-month" schools is devoted to general education); Rumania ("a certain amount of general education is provided, particularly in winter" in elementary agricultural schools); Sweden ("at least 200 hours are given during the first year to subjects of general education" in the so-called agricultural schools).

Instruction in *general subjects* is also not infrequently mentioned as part of the curriculum in *agricultural schools of an intermediate grade*. Nevertheless, the tendency is to assume that as the pupils in these schools are older (fourteen to eighteen) more general education will already have been acquired before entrance. For this purpose previous attendance at a secondary school is mentioned as necessary, e.g. in: Austria (lower classes of a secondary school); Finland (at least a lower-grade general secondary school); Poland ((a) seven years' elementary or four years' secondary schooling or (b) six years' secondary schooling); Rumania (a four-year course at a secondary school); Switzerland (two years at a secondary school before entrance into a so-called agricultural school). As an alternative, attendance at a previous vocational school is also accepted (Czechoslovakia, Estonia, Poland). Attendance at an elementary school to qualify for entrance to certain intermediate-grade institutions is much less often accepted as sufficient, and usually with some added proviso (Belgium, France, Latvia); entrance examinations, sometimes competitive, are in any case common. It is difficult to classify the arrangements made very strictly because the whole system of vocational education is conceived as a whole and courses are not always clearly distinguishable as 'lower-grade' or 'intermediate', but it is clear that many countries differentiate and set up separate vocational institutions to suit the degree of general education previously attained or the further degree of such education desired (Belgium, France, Poland, Sweden, and other countries).

Information on countries not here mentioned will be found in Part II.

The terms of admission to *Universities, colleges, and other institutions giving the most advanced vocational instruction in agriculture* are too various to make any general deductions possible. It is to be noted that in many countries higher institutions cater for different classes of students in different ways and arrange their entrance standards accordingly.

The Suggestion of beginning Vocational Agricultural Education at an Earlier Age; the "Rural Bias" in Rural Elementary Schools; Educational Arguments for and against; Possible Social Effects of a Rural Bias a Strong Objection; Similar Objections do not hold in regard to the Inclusion of Agricultural Vocational Courses in Rural Continuation and Certain Rural Secondary Schools

Our preceding remarks have just shown that among country populations general education is apt to end too soon; we had already made clear that, in addition, among these populations vocational training was apt to reach too few¹. Thus in two directions the capacities of rural populations are insufficiently developed. In these circumstances how is the social purpose of vocational agricultural education to be attained, which is to teach not so much agriculture as the agriculturist, to turn out "the educated farmer whose pores are open to all forms of new scientific knowledge"², and above all to train a sufficient number of such educated and progressive persons?

This is a very great problem, and it is not surprising that any specific suggestion made to solve it should receive great attention. An idea which has been much discussed of late years is to alter the character itself of rural education, more especially in the elementary school.

This is the origin of the suggestion that some form of agricultural education or at least of agricultural bias, usually known as the "rural bias", should be introduced into the curriculum of elementary rural schools.

In that way agricultural training would be linked up with the only form of education which is absolutely certain to reach the whole population of the countryside. All country children would have a chance of knowing about agricultural things before choosing their occupation in life, and such knowledge would not be confined to those who, without any encouragement, had chosen to enter agriculture; in this way, it is hoped, more persons would take up agriculture. Where continuation education can be made compulsory, the same argument applies.

The "rural bias" may range from a perhaps rather haphazard

¹ See pp. 37.

² A. B. BRUCE : "A Philosophy of Agricultural Education", *Agricultural Progress*, London, 1929, p. 100.

process of directing the child's attention in the course of its lessons to country surroundings and of drawing as many illustrations as possible from country sights and sounds, to one of deliberate displacement of lessons on general subjects to make room for vocational lessons on agriculture designed to introduce the child to an elementary but practical knowledge of farming. A good many of the considerations set forth here gain or lose force according to the degree of rural bias which it is sought to introduce. In drawing attention to the rural bias in connection both with rural elementary and with rural continuation education and in seeking to ascertain the opinion of Governments as to its usefulness, the Questionnaire of the International Labour Office did not attempt to define degrees of a rural bias, but left any responsibility in that direction to the Governments. The answers of the Governments, most of whom have obviously been interested in this question, have greatly assisted in making clear the present state of authoritative opinion on this subject.

There are certain educational arguments for and against the rural bias which must first be dealt with. The advocates of such a bias in part rely on a criticism of the nature of present-day general education and draw their strength from a formidable indictment of elementary schools curricula as such. Is not the modern tendency to exaggerate the values acquired by study of the printed page and to neglect those acquired by active dealing with concrete objects and real processes? Here country surroundings offer very rich opportunities. It is commendable that children should be taught to notice their surroundings and that the observational faculties, much neglected in modern education, should be trained. It may even be necessary to open the eyes of country children to natural beauty—the feeling for this is rather rare among country populations; moreover, they will probably follow the teaching much better if the examples are drawn from things familiar to them, and it is not inadvisable to make a special point of this, seeing that many teachers in country schools have been born and bred in towns. But none of these advantages quite outweigh the risk that vocational teaching as such is liable to affect the outlook and efficiency of general education, and that this cannot be made good later by any form of general courses in vocational schools, as such courses are sure to be limited to subjects themselves bearing on the

acquisition of vocational knowledge. Moreover, if it is necessary to train the observation, it is also necessary to train the imagination. Country populations suffer from want of imagination, and a large part of the country school curriculum ought certainly to be set aside for training the spiritual vision of the children, as well as their physical powers of observation.

Thus the educational arguments for and against the rural bias in country schools are fairly evenly balanced. They can be reconciled if the degree to which the curriculum is to be "ruralised" is kept within reasonable limits. More especially is it usually felt that children under fourteen are too young to profit by any vocational teaching of a definite nature, but that it might be useful to have a few simple nature study lessons, a good many illustrations from country life, and encouragement to children to observe their surroundings, the collecting of specimens and keeping up of a school garden, and perhaps some excursions and visits to farms.

The social aspects of the question are, however, of primary importance, and, as already stated, the advocates of the rural bias in rural elementary schools usually originate their arguments in this field; indeed, it is not unusual to maintain that these social aspects outweigh any educational bearing which the problem may have. In other words, the rural bias is to be introduced for certain reasons whatever its effects on the child's ultimate mental growth.

The social end thus sought is usually defined as that of keeping rural populations on the land. Incidentally it may be observed that if the rural bias is effective in keeping a rural population on the land, it must necessarily also act to keep urban populations off it. Though it is obviously unusual for persons in town employment, especially for young persons, to seek agricultural employment, still it is not impossible; vocational guidance possibilities in this direction are insufficiently explored, but what has been done gives a little support to the view that such activities are not unhelpful; a vocational bias in rural schools, by putting the town lad or girl at a disadvantage, would create artificial difficulties. But far more important is the consideration whether it is in any case desirable that the early education of rural populations should be specialised to fit them for rural employment above all other.

It is the characteristic of most modern societies that they are mixed agricultural and industrial, and that they have now reached a stage of development which demands in those who find themselves in one occupation a high degree of understanding for the problems of those in other occupations. The whole industrial and political structure of modern States is built up on this assumption and some of the principal difficulties in working it occur just because such mutual understanding is sometimes lacking. It is a cardinal objection to a marked vocational bias in rural elementary schools that it would breed up divided populations and would refix that gulf between urban and rural life which it was one of the principal achievements of the nineteenth century to sweep away. Indeed, from a social point of view, and consequently from the point of view of the International Labour Office, it would appear not less rational to demand that some general knowledge of rural conditions should be imparted to children in urban elementary schools; as a matter of fact, school gardens are more popular in urban schools than in country schools, just because they fill a gap in the children's ordinary environment.

It is no doubt human to think that life elsewhere is better than life as one knows it, and it is legitimate to point out, even to children, the advantages connected with agricultural or other rural employment, advantages which they might be apt to despise owing to the glamour of ill-conceived ideas of what the world is like elsewhere. But the advantages pointed out must be real advantages, such as cannot be disputed. The elementary school is not entitled to create an artificial desire for any particular employment. The urban school does not do that, does not profess even to train a boy to earn his first week's wages¹, the purpose of the elementary school being general, to fit boys and girls to take their place in human society.

The rural bias, if carried to a point which gives it a true vocational complexion, may certainly be attacked as an improper attempt to force certain groups of the population into certain occupations. It would perhaps be an exaggeration to say that it amounts to a subtle interference with the true freedom of contract,

¹ M. K. ASHBY : *The Country School, its Practice and Problems*, p. 182. London, 1929.

but it verges on this. It is for this reason that the agricultural workers themselves so definitely object to it. In 1926 the *English Landworker*, the organ of the National Union of Agricultural Workers of England and Wales, wrote: "We should be entirely opposed to what is called agricultural bias in education, that is, education which aims at making boys specially fitted for farm work only. If we allow such education it means that the boys are not fitted to take up other work if they wish to, and they are not so well-informed on general subjects as are those from the towns."¹ In 1929 the Executive Committee of the same union formulated a passage in a memorandum on rural education submitted to their Government as follows: "We are entirely opposed to giving an agricultural bias to the teaching of young children. *We are utterly opposed to directing education of village boys and girls consciously towards providing future workers on the land.* Certainly up to the age of eleven the child's education should have no specific reference to any particular future occupation.

"We are most strongly convinced that the education of the child up to the age of eleven should be directed towards the development of what is in him and the encouragement of his interest in and curiosity concerning the world in which he lives. There is no reason, of course, why teaching should not be related to his rural environment, but that is a far different matter from combining brain and hand work with the object of turning out the farm workers of the future"².

But an even more important point arises. Quite apart from the desirability of keeping rural populations on the land, can it be done? The point is made by the opponents of the rural bias that a large number of country children not only do not, but cannot, enter agriculture. Never yet in the course of history has the surplus rural population increase been wholly absorbed by rural industries. There is every indication that in the near future the shrinkage in the number of workers required in agriculture will become more marked. The younger rural population require, if anything, increasing assistance in finding openings other than those in agriculture. Such a tendency is a

¹ *The Landworker*, London, Dec. 1926, p. 15.

² *Ibid.*, June 1929.

symptom of normal economic progress. The productive capacity of all workers rises; consequently, in a industry like agriculture, the output of which cannot be absorbed to any unlimited extent, fewer workers, on the whole, tend to be required: the process is slow, but is taking place. Again, a good many agricultural processes become industrialised and are transferred to urban centres, e.g. the preparation of materials used on the farm; they, of course, carry their workers with them, to urban and away from rural centres.

Agriculture cannot, therefore, as an industry demand a supply of specially trained workers at the cost of sending specially unsuitable workers into other occupations. Yet this is what a vocational bias in country schools amounts to.

It may at first sight sound seductive to demand that the country school should not be a mechanical copy of the urban school, but when it comes down to facts we find almost all persons intimately acquainted with country schools rather wishing that they were. Those in a position to speak are, as a rule, forcibly struck with the inferior condition of the rural elementary school. They do not hesitate to ask that conditions should be levelled up to those in towns. Only when that is done might it be possible to consider what special characteristics could be given to the rural school without sacrificing the claims of general education. For the reasons stated above these special characteristics could never go very far.

Questions referring to vocational agricultural education in elementary rural schools and the possible effects of such vocational education in encouraging children to remain on the land were included in the International Labour Office Questionnaire, though not exactly in such a form as to raise the whole problem of principle and of the choice of future employment. The answer of the British Government (on England and Wales) implies the point referred to above, that many country children will not be able to find rural employment, by stating that the teaching in the English rural school is such that "country youth so trained is ordinarily *not at a disadvantage* (italics ours) if he determines to seek employment in a town". Most of the Governments in answering, and in answering the further question on ruralised curricula, have left aside this particular aspect and have confined themselves to statements that children of elementary school age are too young to profit by vocational teaching proper. However, a few Governments deprecate such vocational teaching in itself as being too one-sided, while a few, on the contrary, believe that as far as children can apprehend such instruction it is desirable to give it.

On the whole, the verdict is against any vocational instruction in

elementary rural schools. At the same time, it is almost unanimous for the ruralised curriculum.

Disagreement with the idea of introducing vocational agricultural education into elementary rural schools is expressed as follows. The Czechoslovak Government states that "it is felt undesirable to lay stress on the importance of any particular occupation or social group"; the Government of the Irish Free State draws attention to the gradual disappearance of practical teaching in agriculture and horticulture from Irish elementary schools after 1875 and finally after 1900, "as it is considered to be of doubtful educational advantage to teach agriculture as an applied or vocational subject to pupils of elementary school age". The Norwegian Government states that "general opinion in Norway would regard agricultural instruction properly so-called as scarcely advisable in elementary schools. It is considered more in keeping with the advanced educational standards of the nation that all vocational instruction in agriculture be reserved for vocational schools".

On the other hand, in Belgium it is laid down by law that agriculture and horticulture shall be included in the curriculum of elementary schools, while a special bias is given to the teaching towards the end of the school period; it is interesting that this bias (where not industrial or commercial) is defined as rural *or* agricultural. In Finland, agriculture is an obligatory subject in rural districts except where, with the permission of the school inspector, another subject more nearly allied to local economic life is substituted; this rarely happens. In France systematic teaching in agriculture is given throughout the elementary school period, the aim being to make the children realise that there are scientific principles behind agricultural processes; such teaching continues in the higher elementary schools; cf. also the answers from Argentina, Canada (Quebec), Chile, Greece, Japan, Latvia and Rumania.

Most States, however, confine themselves to drawing attention to their use of a curriculum ruralised or localised, but not implying vocational teaching: the teaching is "intended to be adapted to the environment of the scholars" (Austria); an agricultural orientation "is given in quite a natural way", because the children are led to have a knowledge of what surrounds them (Estonia); instruction "is restricted . . . to giving an idea of what the earth is like" (Hungary); the children are to be interested in "the characteristics and resources of the country" (Irish Free State); the pupils "obtain a simple knowledge of animal and plant life" (Poland); the teaching is "intended to be linked up with the experience of daily life" (Switzerland); and so on. Great attention is given to school gardens; on this see the "dual plot" system described in the answer from England and Wales. Visits to farms are also instituted in some countries (cf. the answers from Australia, Cuba, Germany, Haiti, Italy, South Africa).

The French Government is the only Government which refers to drawing the children's attention to the natural beauty of the countryside.

The advantages of the ruralised curriculum may perhaps be summed up in the words of the British Government (in reference to England and Wales): "The Board's (Board of Education) officers regard the ruralisation of the curriculum of the rural school as justified. The

concrete teaching appeals to the school child and provides a stimulus which is carried over to other parts of the curriculum. They gather that children to-day when they leave school know a great deal more than formerly about the theory of horticultural and agricultural practice and are able to grasp quite quickly the bearings of statistical tables and analytical statements, e.g. as to manures and quality of seed".

In certain countries, where the problem of town *v.* country hardly arises because of the immense preponderance of rural village life, the question has quite a different complexion. Here the rural (not the "ruralised") curriculum may be described as the general national curriculum, and an "urbanised" curriculum would be a special form of curriculum; the position is exactly reversed. Certain countries, e.g. Asiatic countries, with rural populations and very little manufacture are in this position. How far a rural curriculum in these countries can be a literary or a craft and manual curriculum, and how far in all countries, even those highly industrialised, it might be desirable to replace some literary education by any other form of training which has general educational value, is a question which is not easy to answer. In connection with educational problems in colonies, protectorates or mandated areas under States Members of the International Labour Organisation such questions are of particular importance owing to the general level of civilisation in such parts of the world and the responsibility assumed by the protecting State or Mandatory Power for educational programmes. But such problems must be considered on their own merits, and lie outside the scope of the present Report. No questions were included in the Questionnaire concerning colonies, protectorates or mandated areas.

The suggestion to include vocational teaching in continuation courses is on a rather different footing. Continuation education is given to those already engaged in an occupation. Few countries offer continuation courses, whether urban or rural, which are absolutely confined to general education; opportunities for some vocational training are almost always included, e.g. in Prussia urban continuation classes are definitely vocational. Indeed, vocational training is a primary attraction and serves to bring the younger generation to the continuation school; for at present the innate desire for more general education after the elementary school age is not nearly enough developed, certainly not among country people; where continuation education is not compulsory, the vocational courses thus serve a distinct purpose. It is also important that those who attend continuation schools are older; they are far more likely to profit by vocational instruction. But the most important of the objections set forth above to vocational instruction in elementary schools in any case fall to the ground. In the first place, there is no forced choice of agricultural

vocational education; even in rural districts it is unusual not to offer several alternatives to agricultural courses, preparatory to an entrance into industry, craftsmanship, or even commerce. In the second place, there is actually rather less need for such alternatives inasmuch as a certain number of adolescents coming from rural districts have already been drawn off in the direction of other occupations and are being catered for elsewhere than in continuation courses, either in secondary schools or by some form of apprenticeship; the majority of those attending rural continuation classes are probably in agricultural employment or mean to seek it and agricultural vocational classes are therefore quite appropriate.

It is true that if continuation, or as an alternative whole-time secondary, education were to become compulsory throughout a country there might be a danger of two types of post-elementary education, urban and rural, and these two differentiated types might cause two communities to develop within a single State, especially if general education were to be offered in towns and vocational education in the country. The danger, however, is more theoretical than real; most countries are not yet within measurable distance of having so much continuation education, and universal whole-time secondary education is not even contemplated.

III. VOCATIONAL AGRICULTURAL EDUCATION AND THE SMALL FARMER.—*The Difficulty of Replacing Labour on the Small Farm; the Cost of Vocational Education to the Small Farmer; the Winter School; Disadvantages of the Winter School; Special Courses; Danger of Allowing Special Courses to Interfere with Regular Courses of Vocational Agricultural Teaching*

We have already more than once drawn attention to the unsatisfactory extent of vocational agricultural education¹, that is, to the small number of persons benefiting by it out of the whole rural population. The main reason for this state of affairs arises out of a lack of understanding of the necessity and value of such education. Even where the farmer is in sympathy with the aims of vocational agricultural education, other factors stand in the way. Considerable importance must be attributed to

¹ See pp. 37 sqq.

the small cultivator's unwillingness to do without the labour of his sons. This unwillingness is often criticised; the reasons for it are underestimated by the advocates of vocational training and the means taken to overcome it are inadequate. It is a difficulty which is felt even in regard to attendance at rural elementary schools; however, the retention of children of school age to assist in farm work besides entailing loss of education raises all the positive evils connected with child labour as such; it is therefore easier to pronounce in favour of compulsory measures forcing the cultivator to give up his claim on such work as he could have extracted from his children. But as soon as boys and girls are tolerably old enough to stand some of the physical strain of farming work, they, and more particularly their parents, are apt to ask whether any education they get at a school, even at a vocational school, is really so much better than what they could get on the farm itself as to justify an invitation to attend at such a school. While rural public opinion backs up Governments in forcing children into the rural elementary school, at present it goes no further.

The idea of compulsion has therefore to be abandoned, and such means have to be sought as shall make it attractive, or indeed possible, to the person whose interests are directly affected to consent to the attendance of the rural adolescent at an agricultural vocational school. Unwillingness to release the young adolescent does not wholly arise out of a mere undervaluation of instruction as such, though, as has already been indicated, the alleged superiority of the training to be obtained by simple practice at home may easily, and too lightly, be quoted as a counter attraction. Its principal cause is more immediate and is economic. When the adolescent is the child of a rural wage-paid worker, few indeed are the families who can afford to feed him without the contribution of his own earnings however modest. This difficulty is so overwhelming in an occupation where the wages of the ordinary worker are as low as they are at present in agriculture that it pretty well everywhere prevents the attendance of the younger generation of the wage-earning class at any systematic form of vocational instruction; we shall return to this point as a separate problem; the present section is confined to a discussion of the position of the small working farmer.

When such rural adolescent comes from a class slightly more

prosperous than that of the wage-paid worker in agriculture, namely, from a farm worked wholly or in the main by family labour, another difficulty arises, that of substituting another worker during his absence. At first sight if we compare the number of such adolescents leaving the home farm to seek vocational training with the huge number of persons occupied in the agricultural industry, it would seem that the substitution of another worker must be possible. But the assumption is that a much larger number of adolescents than at present should attend agricultural vocational schools; the problem at once becomes much more difficult. Nor is it easy to envisage the replacement of a member of the farmer's family by hired labour. On such farms the farmer himself is not accustomed to be an employer, the farm offers no suitable accommodation, and the farmer's wife is not prepared to board such persons. Moreover, to replace an adolescent by an adult is an expensive process, and still more expensive is it to replace a son by a stranger. It may be regretted that the economy of the small farm all over the world rests on the unpaid, often sweated, labour of members of the farmer's family, but it is a fact which is so universal that it cannot be disregarded, and a state of affairs which ought to be changed is itself a hindrance to any change precisely because it deprives its victims of any opportunity of fitting themselves for something better.

The argument that the farmer having done without the work of his children until the age of thirteen or fourteen can continue to do without them for another year or two is not at all convincing to that farmer himself. He has been accustomed — perhaps unwisely — to make his boy or girl assist in a number of small operations before and after school hours, and has been painfully waiting for the moment when such boy or girl is free from school in order to require more work, a requirement which is largely justified by his child's greater physical strength. We must reckon with the fact that the father may himself have been much overworked during the last year or two, and also with the very important fact that the labour of the elder children is reckoned on to pay for the growing cost of maintenance of the younger.

Another economic difficulty lies in the cost of schooling itself. Unfortunately this cost cannot be wholly measured by the quality of teaching and length of courses; in countries where

the population is sparse or schools are few, there are boarding expenses to be considered. These fees fall on the farmer's shoulders simultaneously with the cost of replacing his son's labour, and both mean cash outlay. While on the one hand, fees are kept designedly small or even remitted altogether, and while there is much provision for scholarships and bursaries, so far nothing has been done to help the farmer over the difficulty of replacing labour.

The whole question is intimately linked up with the problem as to who shall bear the burden of vocational training. At present that burden is almost entirely a public one, provided for out of State moneys, and this is both necessary and reasonable. A cultivator who, as the result of his training at a vocational school, brings his farm to premier rank in his neighbourhood is not only himself reaping the pecuniary reward of his training; his neighbours can, by simple imitation and without expense or trouble, profit by his knowledge, which thus comes to the good of the whole community¹. From yet a different point of view the costs of training might be looked on as a capital investment, to deal with which the resources of the State could be as legitimately called upon as they are now called on for other purposes connected with agriculture. It is possible that some form of loan, to be repaid after some years, when the farmer's children are grown up and when, on account of their training, their labour is at its most valuable and the family farm most prosperous, might meet the case. It would indeed be desirable if this problem could be attacked at its roots, if, admitting that here lies a real difficulty for a large group of the farming population, special measures could be initiated to overcome it.

But the difficulties set forth can also to a certain extent be met by special organisation of vocational training itself. To avoid the drawing off of essential labour from the farm the winter school has been invented. The farmer has been asked to send his son and daughter, or, if he can, himself, to attend courses of vocational instruction, but only during such time of the year as labour is not wanted on the farm. Such a form of training is perhaps the only possible one under certain circumstances. But it entails grave disadvantages, which it is only necessary to

¹ Cf. p. 37.

mention, so obvious are they. Very little practical training can be given; yet it is precisely practical training which would be most useful; it is important and unfortunate that the boy, released at fourteen from the rural elementary school, is not usually very apt to want to learn theory. His mental faculties have often been so insufficiently awakened that he is totally unable to appreciate the elementary theory to which the vocational teacher seeks to introduce him; and which indeed it is scarcely possible to illustrate even by examples during the dead season of the year. Finally, it is not easy to give the pupils enough education, for there are inherent difficulties in getting them back to a second winter's course where that is attempted; and indeed many of them fail to attend such a second course. The winter school, though absolutely indispensable at present, is not the ideal solution.

Its deficient character becomes even plainer if we look on the question of training specifically from the point of view of the adult farmer, already in practice, and not from that of the adolescent about to enter the farming industry. It is a tradition, and a perfectly commendable one, that vocational agricultural education should broadly cover the whole field of agricultural operations, as far as that is possible in the time available for the various courses. This point of view is the educational, perhaps the scientific, point of view. The utilitarian, or social point of view, would suggest that the content of courses must be confined in the first place to those matters from which the pupil can specially benefit. Where the pupils are young and only about to enter agriculture, a broad content is useful, because it is impossible to know at that stage in what direction each pupil will specialise in his subsequent practical career. But this method assumes that training precedes practice. From the point of view of the adult population training does not precede practice, but follows it. They have already made their choice, or have been already assigned by economic forces, to a certain size of holding, or certain position in a certain type or branch of agriculture. The active farmer will, as a rule, not feel the need for guidance in general farm operations, but he may have a speciality such as milk production, pig breeding, etc., where just because he is a specialist he will feel the value of information, or he may, as do so many smallholders, depend much on subsidiary branches of agriculture

additional to the general running of his holding. He may understand that the margin of money profit can be enlarged by paying attention to such side lines as poultry, bees, fruit, etc., or by acquiring some special skill, which will at certain seasons of the year bring to him a financial reward in the labour market. It has to be realised that the general course at the vocational agricultural school, lower grade or intermediate, just because it is general (and therefore suitable to many adolescents) is without appeal to those who have already assumed their place in the agricultural industry. These persons consider that if they make the great sacrifice of absenting themselves from their work, there must be some immediate and direct utility in the teaching offered to them.

This object can best be attained by a system of special courses or special schools of short duration, organised either as a part of extension education or as annexes to the regular system of agricultural schools. Such special schools or courses need not be relegated absolutely to the dead season. They may be judiciously slipped in, e.g., between the hay and the cereals harvest or during other semi-pauses in farm operations; or they may be arranged for so short a time, three or four days or a week, a fortnight, or three weeks, that the incidence of farm operations may be largely disregarded. Such schools are often travelling schools, as it would obviously be too expensive to arrange them for a single district at a time; but they may also be arranged for one fixed period at an agricultural college or other established vocational agricultural institution, in which case travelling allowances or students' railway tickets are to be recommended. They attempt less than the winter schools owing to their short duration, and specialise in some particular branch, e.g. dairy work, cheese and butter making, bee culture, poultry, etc.

These special schools are useful and, above all, attractive to those for whom they are meant to cater. But they too have their disadvantages. It is difficult to make their teaching thorough; there is no time for sufficient practice. But above all, by the very fact that they are special schools, they interfere with the normal organisation of vocational agricultural education, and this may have injurious effects on the training of the agricultural population as a whole. Their superimposition on a system where there are already schools and courses of a more systematic type,

or dealing with a wider curriculum, but designed to cater for the same social groups in rural society, means that future cultivators of holdings identical in character will have received a very different amount of vocational training. Or the problem may be put in a general way—where a cheaper and easier training is offered, even those farmers who could afford the better and more expensive will be apt to send their sons to, and be satisfied with, the less thorough. In other words, the special schools of this type constitute a danger for the attendance at a better type of school. In the same way we find complaints of competition between vocational continuation classes and lower-grade agricultural schools.

Here is an obvious problem. It is difficult to avoid that just those measures taken to overcome the small cultivator's opposition to agricultural training, his difficulties in depriving his farm of his own or his son's labour at critical seasons of the year, his reluctance to pay the costs of such training, should incidentally prove injurious to the carefully built up system of the regular vocational schools.¹

IV. VOCATIONAL AGRICULTURAL EDUCATION AND THE WAGE-PAID WORKER.—*Very Small Number of Wage-Paid Workers who seek Vocational Instruction in Agriculture; Agricultural Vocational Schools not designed for Wage-Paid Workers; Absence of any Economic Reward for Training in Farm Manual Operations; the Bulk of Agricultural Work regarded as Unskilled; Effect of the New Scientific Management Movement in showing that Ordinary Agricultural Operations are Skilled and could be made more so; Absence of any Form of Vocational Training which at present fulfils this Purpose; the Possibilities in this Direction*

Out of the number of those who enter the agricultural industry as trained persons or who acquire training in the course of their occupation, how many are wage-paid workers? The general impression left by reading the answers to the International Labour Office Questionnaire and the literature on the subject is that the wage-paid working classes in agriculture derive but small benefit from vocational agricultural education. The very

¹ For a summary of information on special efforts made to cater for the needs of smallholders see pp. 65 sqq.

description¹ given of the aims which vocational agricultural establishments desire to pursue show how obviously these schools are intended not for wage-paid workers but for farmers. Moreover, if the economic difficulties in the way of receiving training are great for the smallholder, how much greater are they for the wage-paid agricultural worker, a class whose financial position is notoriously quite precarious. Extension education, which is practically brought to his door, is the sole form of agricultural education from which he can afford to profit. Only in those countries where wage-paid workers can hope themselves one day to become small landholders, by inheritance or otherwise—where they can climb the “agricultural ladder”, as it is called—is there much incentive to the bulk of the agricultural wage-paid workers to perfect themselves in their profession.

In fact, where there is evidence of attendance of wage-paid agricultural workers at agricultural schools, it will usually be found that there is some special objective. In the few cases in which information as to the occupations of pupils' parents has been supplied to us, that information has shown that but few of the pupils were wage-paid agricultural workers or the children of wage-paid agricultural workers. In proportion more such pupils are found at the higher-grade than at the lower-grade schools; these are the exceptional individuals, who have earned scholarships or other assistance and are capable of qualifying themselves for posts in the agricultural teaching profession, etc.

A few countries have vocational courses especially intended for the training of foremen, bailiffs, etc., but these courses are tending to disappear. Practically no instruction is arranged for the general agricultural worker, with the occasional exception of courses in stock-tending which enable qualifications in this direction to be acquired. The practical work taught in connection with vocational agricultural schools seldom aims at teaching the best manual methods. Manual work is largely assumed as known, or picked up in the course of the practical teaching, which is principally directed to training the future farmer and not the future agricultural worker. Even apprenticeship systems, e.g. the Danish, are apprenticeship systems for farmers' sons and teach farm management rather than farm operations; the sole exception

¹ See p. 20 and p. 24.

appears to be the French organisation of apprenticeship for wards of the nation and other orphans, and here again the idea appears to be more to train specialised than general workers. The same applies to the Rumanian schools for farm staff. On the other hand, special dairy and cheesemaking schools or courses are found practically in all countries where milk is produced, and these are much more largely visited by the children of wage-paid workers, especially by the daughters of such workers. But the effect of these schools and of the operations which they teach is on the whole to industrialise agriculture. The attendance of the children of wage-paid workers at these courses is almost a disguised rural exodus.

One great impediment to the spread of vocational training is the absence of foremen's or other analogous posts in the agricultural industry. It is true that there is no dead level of agricultural wages anywhere; there are many distinctions and gradations; a head ploughman earns more than a ploughman's boy, and so on. But there are not nearly enough opportunities in the case of wage-paid workers for superior earnings as the reward of superior responsibility. Owing to the innumerable units into which the agricultural industry falls, only one such superior post is found on most farms, and that, of course, is already filled by the farmer, who, if he is himself untrained, is not very likely to value or look for training in his worker or workers. The trained general farm worker may look long before he finds any job which he could not have taken just as well untrained, or which offers him any financial reward for his outlay of time and trouble.

True, the fact that the agricultural wage-paid worker's work is considered as unskilled work and rewarded as such does not conform with the real state of the case, as more and more writers are pointing out. But there is a shortage of agricultural labour; farming employers are unable to insist on any tested degree of skill. There is thus a vicious circle; skill is not recognised and the worker therefore has no motive to attain it; because it is not attained by a sufficient number of workers, there is no means of forcing employers to recognise it. The result is a loss of workers, especially of young workers, to other occupations where training offers some hope of reward.

It is only recently, under the influence of the scientific manage-

ment movement in agriculture, that skill in agricultural manual processes has been studied as an independent problem. It is the merit of scientific management experts to have pointed out both that agricultural manual performance varies and that it can be improved. The whole idea of the "science of farm labour" rests on the principle of establishing the best way of carrying out manual operations. This presupposes training on a large scale for manual workers. In any case, the number of manual operations to be carried out on farms is so great, and many of them are done for such a short period at a time, that a good case can be made out in principle for systematic training to replace merely empiric experience. Such a training at present simply does not exist; the bulk operations of agriculture—the ploughing, hoeing, dung-strewing, seeding, reaping, gathering—are done by untrained workers working under untrained employers.

It would appear that there is here an enormous field in which vocational agricultural teaching might be useful. The immense amount of manual work which (in spite of mechanisation of farming) is bound to be carried on, together with the poor reward which it at present carries, establishes a *prima facie* case for a move in this direction. The recognition of skill in ordinary farm operations would be a first step towards insisting on a better reward, and that better reward would fundamentally be earned, and not only claimed, by a real increase in output; nor would the advantages of this in any way be confined to the wage-paid worker, but would benefit the whole farming world, of whom the larger number themselves spend many hours of laborious toil in carrying out manual processes. Improvement of quality of work resulting in improvement of quality of produce has been the history of certain favoured branches of agriculture such as dairy work, and to some extent stock-breeding (as distinct from stock-tending). It remains to carry the lesson over to the bulk operations of agriculture, at the same time frankly admitting that experimental work in regard to manual methods in agriculture has still a long way to go, and that not much that is definite has yet been done on experimental stations for scientific management in agriculture to establish really perfected methods for manual operations on farms.

Special arrangements for smallholders and for wage-paid workers.—In Austria fresh efforts are being made to attract the large small-

holding and peasant population to agricultural education; agricultural continuation education is specially designed to meet their needs, while winter and all-the-year-round lower-grade agricultural schools give free tuition in order to train boys of fourteen to sixteen either to manage a smallholding on scientific lines or to qualify for a position as manager on a large estate; moreover, the Rural School of Home Weaving at Imst trains in a winter occupation; finally, a milker's course is specially arranged to teach advanced dairy practice to small groups of selected wage-paid workers; this small group is specially interesting because it is partly initiated and supported by a trade union of agricultural workers. In Belgium the whole system of agricultural education appeals to the smallholder. In Czechoslovakia a new type of rural continuation education has been inaugurated since the war; a system of agricultural apprenticeship is being started, e.g. in Bohemia, while the central authorities not only give scholarships themselves to children of wage-paid workers, but also encourage the local authorities to do the same. This scholarship system, if eventually carried out in all districts, would result in the granting of 500 scholarships annually; some of the lower-grade agricultural schools are specially suitable for children of wage-paid workers or of smallholders. In Estonia a few children of agricultural wage-paid workers and of artisans attend agricultural schools. In Finland a great deal is done for the large smallholding population; of the lower-grade farmers' schools two are smallholders' schools and there is also an itinerant smallholders' school; in addition may be mentioned a private school for rural crafts, and above all the largely attended short courses for smallholders; a certain number of children of wage-paid workers are found attending all vocational agricultural schools. In France an apprenticeship system has been started since the war for children of wage-paid workers and for orphans; a private agricultural school caters especially for orphans or children whose parents are unable to pay for their education; special instruction in agricultural mechanics likely to be useful to small cultivators is also arranged by private effort. In Great Britain the new system of scholarships for vocational training, providing successive awards which can carry the clever child of a wage-paid worker on to the Agricultural Faculty of a University, is likely to prove a stimulus to the rural wage-paid classes; another interesting experiment is Avoncroft College. In Scotland there are special schemes of instruction for smallholders. In Hungary lower-grade agricultural schools cater for smallholders. In the Irish Free State lower-grade agricultural schools arrange their courses especially for the sons of farmers who cannot be expected to pay for one or two years' residential instruction; scholarships are given. In Italy a large number of practical courses are arranged for peasants. In Norway every possible opportunity is given to smallholders (who form the bulk of the rural population) to acquire agricultural instruction; courses are arranged so as not to interfere with urgent work, and there are arrangements for scholarships and maintenance; vocational instruction is available even for populations in mountainous or fishing districts, while six smallholders' schools deal particularly with those branches of agriculture which are carried on by smallholders; a special training college supplies teachers to these smallholders' schools. In Poland some lower-grade agricultural schools arrange their instruction so that pupils may return to the home farm for the summer

work; at other schools bursaries are given; a certain number of pupils are sons of wage-paid agricultural workers and nearly all those leaving these schools return to a family farm. In Rumania 20 special agricultural workers' schools have been established, attached to various estates; it is to be assumed that they train for specialised work in large-scale farming; the new Education Act lays much stress on vocational instruction for the general rural population. In Sweden a distinction is made between the type of school training for the position of foreman or bailiff and that training the general agricultural population (training for the management of a large farm is again separate); particularly interesting are the arrangements for study journeys for smallholders; a parliamentary appropriation for vocational instruction for smallholders was first voted in 1901, since when the tendency has been more and more to adapt teaching to local and special requirements. In Switzerland agricultural continuation schools are intended to benefit both farm servants and the sons of peasants unable to afford the expense of a whole-time agricultural vocational school; the winter schools give theoretical instruction to those who come from family holdings and return to that type of farming; the work of the Swiss Peasants' Union in encouraging bookkeeping on small farms is well-known and has proved a model for similar work in other countries.

§ 4. *Conclusions.*—*Vocational Agricultural Education must be Appropriate to the General State of Agriculture in any Particular Country and must therefore be Conceived as a Public Responsibility; it must further be Suitable to the General Level of Rural Education of any Particular Population; Special Need for Raising that General Level in almost all Countries*

The foregoing sections have shown how intimate are the connections between vocational agricultural education and the structure of rural society, and how important are the social problems raised. That education is one part only of the general effort made by Governments to encourage agriculture. The realisation of this imposes special obligations and limitations. For example, agricultural schools can only insist on the advantage of reconsolidation of holdings if there is suitable national legislation in force making such reconsolidation easy; nor is it useful to advocate expensive soil improvements in a country where the land tenure system does not permit the occupying farmer to invest capital as a long-term investment owing to the absence of long-term leases or adequate tenants' protection laws; the advantages of selected seed are not to be taught unless selected seed can be obtained, etc. Vocational agricultural education must advocate in its teaching what is appropriate to the general state of the agricultural industry in a particular country, and is

severely conditioned not only by the natural, but also by the economic and social circumstances governing such industry at any particular time.

Indeed, the effort to organise vocational education, including vocational agricultural education, may be described as one of the best expressions of the social responsibility of Governments. For, if vocational agricultural education is but one out of a series of measures to encourage the agricultural industry, it is also one link only in a general system of State education. While what is taught must, as already indicated, be appropriate to the general state of the agricultural industry, it must also be suitable to the general level of education of the rural population. Nowhere has that general level yet attained a satisfying standard. Consequently, from this point of view also, agricultural vocational education systems have nowhere yet found their final form. Every educational method that has here been described may to-morrow be replaced by something better, until the very reasonable ideal of a whole generation of farmers all vocationally trained has been attained.

Already the usefulness and success of vocational agricultural training and of a general high level of intelligence among the farming populations are indisputable. It has been pointed out that intensive farming in Europe is coincident neither with districts of dense population nor of good communications, but with those where the spread of good educational standards among the farmers is marked; for instance among the managers of large estates in North and Central Germany, among the smallholders of Belgium, Denmark and the Netherlands, among the tenant farmers of England¹. Nor can an explanation be sought in the existence of vocational training alone, for the facts prove that the numbers reached by such training even in these districts are very restricted. The explanation must lie in a high level of general education. That is a more or less acknowledged fact in regard to Danish agriculture. It was the general training of the People's High Schools which enabled Danish farmers to grasp the need for a complete technical change in their farming methods and the advantages of the invention of the separator.

¹ BAADE, Dr. F.: *Entwicklungsmöglichkeiten der europäischen Landwirtschaft*, p. 38. Berlin, 1928.

It was only after the general level of education had been raised that the demand was put forward for vocational education proper and vocational schools were established.

We must therefore once again draw attention to the vital need for raising the general educational level of rural populations as a pre-requisite to any real progress in vocational agricultural training. Too much insistence cannot be laid on this point, which is integral to the advance of the agricultural industry. The possibilities of progress are enormous, and the amount of vocational training required is modest, if the mentality of farming populations could be rendered more receptive and elastic. Hence the value of extension education in agriculture, which gives just a glimpse of agricultural progress to a large number of persons.

Vast Number of Enterprises carrying on Agricultural Operations; Need for taking this into Account; Resistance of the Farming World to New Ideas; Compensating Advantages; Absence of Trade Secrets; Effects of the Sharing of Knowledge

This problem of the large number of persons to be reached is itself of great importance. The carrying on of vocational agricultural education is bound to be conditioned by the structure of the agricultural industry. Now the basic characteristic of that industry is the multiplicity and dispersion of the independent enterprises carrying on agricultural operations; in some countries the carrying on of cultivation processes is subject to such splitting up to an exaggerated extent. The vast number of independent farms which separately carry on agricultural processes means that the proportion of responsible persons who in agriculture require an all-round education in their occupation is far greater than in other industries. A much larger number of individuals have to be approached, while the dispersion of farms introduces an actual geographic difficulty which is not met in urban industry. This means that the effect of instruction or indeed of any communication is for a long time uneven and partial¹. The

¹ An unusually interesting instance may be quoted in the fact noted that when first the phylloxera broke out in the vineyards of the south of France, cultivators continued for some time eagerly to buy up vineyard land in one district while the phylloxera was raging almost next door, so little had they been made aware of the deadly nature of the disease. (M. AUGÉ-LARIBÉ: *Le problème agraire du socialisme; la viticulture industrielle du midi de la France*. Paris, 1907.)

reception of information is indeed apt to be very unequal among farmers, so that good farming and bad farming are found cheek by jowl; but nothing is so inhibitive to a good standard of vocational training as poor enterprises which somehow continue to exist.

Now the resisting power of the farming world to educational advance in general is firmly entrenched in a dependence on traditional knowledge and the practice of traditional forms of management. These traditional forms of management are a very important factor in agriculture. They are often empiric, but they have proved their worth; indeed, they have achieved an almost unbelievable degree of perfection, even among uneducated populations, and the cultivation of the earth could not have been carried on without them. It is only the discoveries of modern science which put a lesser value on them. One of the principal disadvantages attaching to them now is not that they are all valueless in themselves, but that they block the way to better things. So much dependence on tradition breeds a mental opposition to what is new. It is a commonplace that farmers are conservative to the last degree.

Yet when this conservatism is analysed it appears rather as a form of false fear of the future than of false pride in an inheritance; it is not that a farmer does not wish to try what is new, but rather that he does not dare. The margin of profit in agriculture is narrow, just because the unit of production is small. The economic penalty of making a mistake never ceases to be present to the farmer's mind. A cash loss of only one crop may mean a great deal even to a large-scale farmer. Private experiments, of course, are tried, but they need an uncommon degree of courage, and there is an absence in the agricultural industry of those large and wealthy associated ventures—corporations, trusts, and joint-stock companies—which in some industries, e.g. the metallurgical, can afford to keep a certain amount of routine research work in hand. Hence the great need for State experimental stations in agriculture, experiment being hardly within the normal vision of the farming community at all. But the attitude of mind which cannot itself contemplate the carrying on of any work of discovery is not the best for accepting the results of such processes when carried out by others.

But there are also real advantages in this basic fact of the

number and dispersion of enterprises. One farmer who adopts a new practice will convert a group; in this way agriculturists can contribute a sort of self-help which is most useful. Even the smallness of the productive unit can be an advantage. Thus boys' and girls' clubs, which will probably in course of time have a large influence on agricultural practice, are only possible in agriculture. Here the productive enterprise is the smallest possible, e.g. a few chickens, a pig, a calf—indeed, just such an enterprise as can be handled by a child. Where in manufacture can one find a parallel? Such opportunities are unique to agriculture and are an asset, making simple, easy and cheap what taught in institutions would be complicated and expensive, and providing for each individual as he enters the industry almost unrivalled possibilities of combining learning with earning.

More important is the fact that there are no trade secrets. This is the inevitable consequence of a State-handled research, for it is the declared purpose of the State to work for the benefit of all, and it is not within the power of any individual cultivator to earmark any improvement for himself. Even if such discovery were first to be made on a private farm, there is no known method of patenting it; nor have farms walls. One person's knowledge is all persons' knowledge.

The economic effects of this sharing of knowledge are profound. As soon as the wheat output can be raised on one field it can be raised on another.

Position of the Agriculturist in view of any Probable Large Increases in Gross Production; Vocational Agricultural Education as a means of Removing the Reproach of Inefficiency from Agriculture; as a means of Securing Quality in Production; as a means of Teaching the Agriculturist how to Handle the Economic and Business Side of Agriculture; as a means of Surmounting the Shock of any Inevitable Shrinkage in the Size of the Agricultural Population

Now the rate of modern scientific discovery is entirely unrelated to economic demands, and no sort of attempt is made to control its pace from that point of view either in agriculture or in any other industry. It is doubtful whether such an attempt could be made. The scientific impulse is too important a feature of the modern attitude to life to consent to be subservient to

industrial limitation; such limitations can never be interesting to the scientist, who exists in order to break through them.

But far more influential than the scientist's point of view is that of the consumer. There is so just a demand on the part of consuming populations, especially working-class populations, for more and for better quality of food that it is inconceivable that any suggestion to limit supply would be listened to. Society claims, and rightly claims, the largest and the best agricultural production from those who are in monopolistic occupation of what is normally estimated to be the most important form of national wealth, the land. Thus the cry is for larger and larger production, and public moneys for vocational agricultural education are gladly voted as a means to that end. In this the good sense of the public and of legislatures is not at fault, for, as has already been stated, so vast is the size of the agricultural industry that the effect of even a small improvement may mean a large increase in production. There is no doubt that the great scientific advances made in modern times have a tendency to increase the volume of certain staple agricultural commodities at a rate too rapid for convenient absorption by the consumer at prices still remunerative to the farmer. The final effects even of those scientific discoveries which can already be applied to agriculture by the agency of good systems of vocational education have not yet been worked out, and no one can foresee what will be the situation if the rate of discovery continues as rapid as it has been during the last fifty years and if vocational agricultural education improves and becomes universalised.

But the object of the agriculturist is to earn his living. To him an increase in gross production is only useful under certain conditions. The old truth that a bad harvest can put much money into the farmer's pocket while a bumper harvest will cost him the price of the reaping is more important to his interests than anything else. In accepting vocational agricultural education as an assistance to his career, his objective is to learn to produce, not the largest amount physically possible from his land, but more than his competitors produce at the same cost from an equal area. But if the result of vocational agricultural education is simply to increase gross production and if the services of the State on a great scale have been evoked in order to get those results over as wide an area as possible, it is not certain that the

financial (as apart from the ultimate economic) advantages of agricultural improvements will be anything but short-lived, or that they will fall into the pocket of any but the very wide-awake farmer. If we apply the same argument on a larger scale all that can be said is that the community which at present can apply the results of scientific discovery *rapidly* to its agriculture is in a fair way to be saved, as Denmark was saved in the nineteenth century by adopting what were at that time revolutionary methods. But the effects of a combined application by a large number of countries of any particular improvement might be quite different.

We appear almost to have arrived at a *reductio ad absurdum*. Want of agricultural prosperity has of late years been a definite stimulus to agricultural populations to seek more technical knowledge; a farming industry which is expanding will quickly absorb all the younger generation, trained or untrained; an "extractive" agriculture neglects training because it is making money anyway. It is usually when farming is unprosperous that it will go through the expensive process of seeking more knowledge. But if knowledge defeats its own ends, what of it?

Three considerations apply in answer to this argument. In the first place, the mere removal of the reproach of inefficiency from agriculture would be an advantage. Society has the right to demand the highest standards of efficiency from those who are in occupation of the cultivable areas of the earth; it can scarcely be said that those highest standards have been reached or that the reproach of inefficiency is not frequently a just one. To remove it is important, for it is unlikely that agriculture will receive adequate consideration from those who guide public policy until that has been done. From this point of view alone vocational agricultural education is worth while.

In the second place, the objective of vocational agricultural education might be not so much a larger volume of production as better production, and especially specialised production. There will be for years to come an always expanding market for "quality" products. Here the interests of the industrial working classes so notably coincide with those of the agricultural producer that a fundamental reconciliation is possible. It is essential that the industrial working classes should consume more milk, butter, meat, fruit, etc. Such produce ought to be saleable for

many years at prices which pay the agriculturist—if he is capable of producing them skilfully and easily. Here vocational agricultural education is the way and the means.

But even supposing that this avenue failed, that the same situation appeared in regard to these products as at present depresses the prices of cereals, namely, shrinkage of buying (as distinct from consuming) capacity in relation to growing production, could not the basic principle of vocational agricultural education then be applied to deal with the agricultural economic situation itself? Or must the advocates of such education drift helplessly towards an unmanageable volume of production without feeling themselves responsible for advising and training the agriculturist to deal with this all important side of his life? It is clear that the conception of vocational agricultural education needs to be enlarged so as to deal with farming as a business and not only as a science.

Considerable efforts are being made in this direction. Instruction in bookkeeping is now a normal part of the curriculum in many intermediate-grade and in some lower-grade vocational agricultural courses. Incidentally it is interesting to note here again how great a part has been played by exchange of method from country to country. But the keeping of account books is only half the battle; farmers have to be taught to draw the necessary conclusions from their accounts, and thereafter to initiate the necessary action. Such a process, based on scientific principles, is as yet only in its infancy. It is perhaps hopeful that this side of a general advance in agriculture should have been attacked, in exactly the same way as advance on the physical side of production was first attacked, from a few very well-equipped centres, the staff of which is competent to handle the preliminary, exceedingly difficult, processes of economic research; afterwards the results will have to be popularised, just as the discoveries of Liebig and all subsequent discoveries in the field of natural science applicable to agriculture are daily being popularised among the farming world.

Many Government Departments of Agriculture have set up an economics branch or bureau. Australia has recently initiated an important Federal Agricultural Economics Bureau independent of the State Departments of Agriculture, but which is designed to be of service to them; the Bureau of Agricultural Economics in the United States Department of Agriculture is well known. Commissions set

up for a period to enquire into the economic position of agriculture were fairly frequent before the war and have since been numerous and very important; mention may be made of: the Tribunal of Enquiry of England and Wales; the German and Polish Commissions into Production; the Indian Royal Commission on Agriculture; French Census on Agriculture; Swiss enquiry into Rural Exodus in mountainous districts; the Canadian Commission into Agriculture; the agricultural world census to be carried out in 1930 under the auspices of the International Institute of Agriculture.

Other research is carried on by permanent agencies. It is impossible to give a list of all these, but mention may be made of the Agricultural Economics Bureau of the University of Oxford, the National Conference Board of the U.S.A., the Danish Farm Accounting Bureau, the Swedish Farm Accounting Board, the Czechoslovak Academy of Agriculture, the Bureau of Silesian Agricultural Employers, the Austrian Farm Accounting Bureau, the Union des Paysans suisses, and the efforts made during the last two or three years by the International Commission of Agriculture to publish an annual volume on the economic agricultural situation. Special importance attaches to the experimental institutes at Pommritz in Saxony, and Uhrineves in Czechoslovakia, which deal with labour questions, as these are the only examples of actual experimental work which has an immediate bearing on the economic side of agriculture¹.

It will be the business of the vocational agricultural education systems to take over the results of this economic enquiry work and to show the farmer how to apply it. No system of education, of course, will transfer the farmer's personal responsibility away from himself; he can but profit to the best of his ability by the training he receives. But to offer that training in the economic field, as it has hitherto been offered in the scientific field, is perhaps the biggest task which now confronts agriculture, and it may be declared fortunate that the mechanism of vocational agricultural education has got itself so firmly established in a large number of countries and has so gained the confidence of the farming world now that this effort will clearly be required of it. It is hardly possible to exaggerate the importance of this future development of vocational agricultural education, if it is handled energetically.

The fact should be frankly faced that an increase in efficiency will possibly mean a decrease in the number of persons able to live by carrying on agriculture, or possibly some particular

¹ These two institutes research into the "science of farm labour" on principles which are partly physical (recording of fatigue, etc.), partly economic (effects of systems of wage payment, etc.).

branch of agriculture. Already the increase of efficiency in sugar production has led to such a situation. In spite of the enormous possibilities of increased consumption of agricultural products, there may be a progressive shrinkage of the proportion of populations to be occupied in agriculture. Yet nothing could justify neglect of education as a step towards efficiency merely in order to retard this shrinkage. On the contrary, education is the one good means open to the agricultural population to enable them to surmount a crisis, which, with the introduction, e.g., of more and more machinery, of scientific management, etc., into agriculture, may prove almost as severe as was the Industrial Revolution for other industries.

PART II

AGRICULTURAL VOCATIONAL EDUCATION IN VARIOUS COUNTRIES

NORTHERN AND CENTRAL EUROPE

NORWAY

Authority and administration; organisation; extent of agricultural education.—With the exception of the foundation of the Norwegian School of Agriculture by the Act of 22 May 1897, vocational agricultural education is not regulated by legislation, but partly by Resolutions adopted by the Storting and partly by Regulations issued by the Ministry of Agriculture. The Agricultural High School and a training school for teachers in smallholding are State schools; lower-grade agricultural schools and smallholders' schools are nearly all maintained by local authorities; a few only are private schools, but all, with the exception of the winter school in Oslo, receive local grants. Local authorities are themselves financed by the Government, usually as to three-quarters of the cost of teachers' salaries and as to whole cost of scholarships, light and fuel at the schools, experimental work and some other expenses, and as to their grants to private schools.

The general educational system in Norway provides no agricultural education; this is reserved to the agricultural schools. The lowest age of entry to such schools is eighteen. This education is divided between agricultural schools with courses from 6 to 18 months, and an Agricultural High School. It has been calculated that Norwegian agriculture needs 4,000 to 5,000 persons a year to replace farmers and managers leaving the industry through old age or death. It may be estimated that 25 to 30 per cent. of farmers and managers entering the industry have received agricultural and vocational training, a proportion which is much higher than in most other countries. Norway has also created a well-developed extension system, from which half the agricultural population is estimated to benefit each year.

Elementary education in rural districts.—Attendance at an elementary school is compulsory and extends over a period of seven years, mostly from the child's seventh to his fourteenth year. The curriculum does not include agriculture. Some of the urban schools have school gardens for the purpose of awakening the interest of town children in gardening and fresh-air occupations. In most schools boys are taught sloid and drawing; girls are taught needlework and also receive

some instruction in the school kitchen. The reply of the Norwegian Government to the International Labour Office Questionnaire states that general opinion in Norway would regard agricultural instruction properly so-called as scarcely advisable in elementary schools. It is considered more in keeping with the advanced educational standards of the nation that all vocational instruction in agriculture should be reserved for vocational schools.

Continuation education.—Continuation schools are well developed. A number of districts have established such schools, usually with a course of about 24 weeks. In addition, people's high schools and county schools for adults exist; some of the continuation schools and people's high schools give lessons in agriculture, horticulture, and animal husbandry.

Vocational Agricultural Education

Apprenticeship

An apprenticeship system in agriculture, care of domestic animals, or horticulture is arranged by certain lower-grade schools; one school arranges for apprenticeship in handicrafts. Apprenticeship lasts from 6 to 12 months. About 80 to 90 young men are trained in this way each year, half as dairy herdsmen. Training schools for teachers in smallholding (see below) also arrange for apprenticeship lasting a year. Apprentices receive free training and a monthly cash wage; also about 100 hours' theoretical instruction.

Lower-Grade Agricultural Schools

These schools, though called lower-grade, are only so as distinct from the Norwegian School of Agriculture at Oslo or special institutions; they therefore include what in other countries are called intermediate schools. Pupils must be eighteen years of age, have attended an elementary school for seven years and, as a rule, also attended a people's high school for six or seven months; they must have had one year's practical training in farming. The majority of the pupils are sons of farmers and smallholders. In this connection it must be remembered that most land in Norway is held in farms too small to require hired labour.

The subjects taught are nearly the same in all these schools, but are more or less detailed according to the length of the courses; they are also specialised to suit the special agricultural conditions prevailing in the district. Theoretical instruction now occupies 1,300 to 1,600 hours in the schools with 18-month courses, and 600 to 700 hours in those with 6-month courses. This step, first introduced in the nineties, constitutes a great change in the teaching of agriculture; before that nearly all instruction was purely practical. Theoretical instruction is now particularly stressed in the principal subjects, such as crop production (including most particularly knowledge of machinery), animal husbandry, forestry, and horticulture; instruction in the keeping of small domestic animals has also been enlarged: several schools have now a special teacher in this subject. The teaching of pure science, however, has not altered in extent over the last thirty years, except that more electricity and less chemistry is perhaps

given; also less instruction in drawing. On the other hand, instruction in Norwegian and in arithmetic has been enlarged, although it has been proposed to abandon these subjects altogether and demands have been put forward that all pupils should have passed through a young people's school or a people's high school. New subjects are instruction in citizenship and in co-operation. Most schools have arrangements for teaching mechanical repairs and smith's work. All courses close with an examination. All instruction, except in private schools, is free. Most lower-grade agricultural schools are boarding schools. Pupils pay for board and lodging at cost price, but in cases of necessity board is provided free and also money for the purchase of books. The schools award scholarships to the value of one-half the cost of board and lodging.

The lower-grade agricultural schools are classified as follows :

(a) *Schools with a six-month course.*—Nine schools, situated chiefly in the mountain districts, some in the fishing districts, are mostly attended by pupils not able to afford a longer course. Instruction is mainly theoretical; only five of these schools have a small farm attached. Of the rest, three are itinerant schools remaining one to five years only in a district and then moving on.

(b) *Schools with a nine-month course.*—Two schools, both in mountain districts, have a course beginning in September and ending in June, thus enabling farmers to retain the assistance of their sons during the hay-harvest so difficult in the mountains. Pupils take part in the spring and autumn work on the small school farms. Theoretical instruction extends over about 1,000 hours.

(c) *Schools with a one-year course.*—Five schools with a course running with the calendar year, all situated in the Western and Northern part of Norway where smallholding is specially prevalent, have farms attached on which pupils are given practical instruction. Theoretical, but not practical instruction, covers nearly the same ground as that given in the schools with an 18-month course.

(d) *Schools with an 18-month course.*—These schools are the most important; they are attended by more than half the pupils graduating from lower-grade agricultural schools. There exist 18 of these schools, with from 50 to 120 pupils and a teaching staff of from 5 to 10 persons. Courses begin in October and end in April of the succeeding year. Theoretical instruction is given during the winter, practical instruction during the summer. Farms varying from 20 to 80 hectares together with some pasture, and from 20 to 400 hectares of forest, are attached to each school; but as not all pupils can now practise on the school farm, a large number are placed as students on private farms recognised by the school.

(e) *The Winter Agricultural School in Oslo.*—The private Winter Agricultural School in Oslo is the only agricultural school situated in a town. The School has several courses, the principal being a two-year theoretical course, the amount of theoretical instruction being about equal to that given in the agricultural schools with an 18-month course; this is combined with 18-month pupilship on farms recognised by the school. This School has broken new ground, especially with regard to the pupilship system on farms. The School has also a one-

winter course for pupils with a specially good general education (matriculation, attendance at a short course at an agricultural school, etc.). Candidates for admission to either of these courses must be eighteen years of age and have had two years' practice in agriculture. There is also a winter-course for bailiffs ending with a technical bailiff's examination, intended for pupils having had at least 1,000 hours' theoretical instruction at an agricultural school or equivalent theoretical instruction together with four years' practice in agriculture, of which two must have been spent away from the home-farm. Finally, the school has three-month courses in general agriculture, in trades subsidiary to agriculture, and in forestry intended for public officials having had special training other than agricultural; also a course in "women's agriculture" consisting of three months' theoretical instruction and eight months' practical training on a recognised farm.

The total number of pupils graduating from lower agricultural schools each year is about 1,300. Of this total 450 pupils had taken 18-month courses with practice in the school, and 170 had practice on private farms, 130 pupils had had two winters' theoretical instruction (the winter school in Oslo), 150 had had one year's practical and theoretical courses, 300 had taken shorter six- or nine-month courses, and about 100 came from smallholders' schools (these will be dealt with below).

Higher Agricultural Education

The *Norwegian High School of Agriculture*, at Aas, near Oslo, was founded by an Act of 22 May 1897. The Act states that the purpose of the School is to give instruction on a scientific basis and to promote scientific studies in the subjects treated at the School. The course lasts for three years. Practical training is not given, but there is ample opportunity for exercises in surveying, seed-testing, etc. The High School has five departments: agriculture, forestry, horticulture, dairying, and reconsolidation of intermixed holdings. The average number of students entering each department yearly is about 60 or 70, of whom a few study horticulture, about 25 agriculture, 30 forestry, and 10 to 12 reconsolidation. A farm of 150 hectares of arable land and some forest land is attached to the School. The High School is closely linked up with practical agriculture in the country through its rules of admission, which demand that candidates shall have passed examinations from a lower-grade agricultural school with at least 1,000 hours' theoretical instruction per course, and must have had two years' practical work in the branch he wishes to study—summer practice at an agricultural school counting as half a year. General educational qualifications (matriculation standard) are also insisted upon; but a special preparatory course is available. The advantage of establishing higher-grade agricultural instruction as a continuation of that given in lower-grade schools is especially great in Norway, where agricultural conditions vary so much. At his lower-grade school, which is adapted to local conditions, the student gets a thorough knowledge of local agriculture, such as he could not obtain at the High School; he has an insight into local conditions which stands him in good stead even if he does not return to his own district. The High School is a boarding-school. Students pay cost price for their food and the cost of cleaning and lighting of their rooms. A considerable number of

scholarships are available. Specially clever students can, after passing the final examinations, obtain scholarships enabling them to do advanced work at the High School for a period up to three years.

Special Institutions

(a) *Smallholders' schools*.—Six smallholders' schools exist in Norway, four of which are independent (20-50 pupils), while two are attached to people's high schools (12-18 pupils). Smallholders' schools were founded because a great many smallholdings, when farmed in the ordinary way, do not provide a living for a family: special stress has to be laid on profits to be obtained from pig-keeping and the care of small stock, etc. Smallholders' schools devote more attention to these subsidiary agricultural subjects and to craftsmanship than do the general agricultural schools. They need a relatively more expensive equipment. Smallholders' schools demand the same qualifications for admission as the lower-grade agricultural schools, but have no final examination. They have a winter course with 600-700 hours' theoretical instruction; pupils assist in the care of small stock. Small farms are attached to all schools, but opportunities to follow a practical 6-month course are only available on the slightly larger farms attached to the four independent schools.

(b) *The Norwegian School for Teachers in Smallholding*.—Admission is as for the High School of Agriculture at Aas, except that general education qualifications need not be quite so high. The course lasts two years (originally one year). Unlike the High School of Agriculture, practical instruction is also given, especially in the keeping of small stock, of which the School possesses a fair collection on the farm attached to the School. The School can receive 20 new residents each year. Shorter courses for teachers are also held. The apprenticeship system in handicrafts has already been referred to.

Agricultural Extension Education

Lower-grade schools hold short courses for working farmers; in recent years about twenty such courses have been given annually to about 500 persons; these short courses are relatively most frequent at the smallholders' schools. However, these courses form only a small part of the whole extension work in agriculture, horticulture, domestic science, etc. An agricultural association exists in each county, the total staff employed being 140 persons, of whom 18 are administrative; a similar number is employed by agricultural associations in the hundreds, while the Government itself employs about 80 officials. A minority of this staff is engaged on experimental work; the majority arrange lectures and courses (which are also given by the teachers of lower-grade agricultural schools), or act as itinerant teachers and advisers to the farmers and smallholders in their districts. Advice is free of charge. The number of courses given varies from year to year, but the answer of the Norwegian Government to the International Labour Office Questionnaire estimates it to be about 500, lasting as a rule five or six days, though some courses are shorter and some longer than this. It is further estimated that more than half the farmers benefit by extension teaching each year.

Girls' and boys' clubs proper do not exist, but some of the "Youth

Associations" have arranged lectures on agriculture, undertake afforestation work, etc. The Norwegian Association of Farmers and Smallholders has done much for vocational education by arranging courses and excursions for smallholders, but its membership is not large and its finances are rather limited. Other organisations of farmers do not take part in vocational education work.

Appendix : History of Agricultural Education

The first agricultural school in Norway was founded as far back as 1825 by Jacob Sverdup. The course lasted one and a half to two years according to the qualifications of the pupils. Practical and a little theoretical instruction was given; the general standard of education of the pupils, sons of peasant farmers, would have made a more elaborate theoretical instruction difficult. The pupils were considered as farm employees and were paid for the work they performed. The school also had paying pupils from higher social classes, who took less part in the practical work but received more theoretical instruction. Such class distinctions persisted in agricultural education for some time. For some years this school received Government grants, but the idea of creating a High School of Agriculture was only brought forward to be abandoned. In 1842 the Norwegian Parliament voted grants to agricultural schools established by local authorities or private persons; in 1845 these grants were increased, but were made dependent upon a similar contribution from the local authorities, and the schools were now brought under Government control. In the course of the 'forties agricultural schools came into existence in all except the most Northern counties.

In 1854 the State founded a High School of Agriculture at Aas, near Oslo, with a two-year course enabling pupils to take part in all types of practical work during the summer. Shortly after, a reaction set in against agricultural education in general. This reaction caused the number of agricultural schools to be reduced from 18 to 6 (see table below) and also threatened the High School at Aas. However, persons favourably disposed to the School succeeded in getting a reform put through which meant a stage forward; the two-year course was made both practical and theoretical; as it was expected that the closing down of many district agricultural schools would increase the attendance at such a course, a higher department of theoretical instruction was established, to which pupils both from the lower course at the School and from other agricultural schools could be admitted. This reform came into operation from the year 1871, but, in general, the reaction was still making itself felt. The reasons given for this state of affairs are various. There was a great lack of qualified teachers and the equipment of schools was often too primitive to make the instruction really effective. The difficult years from 1859 on created a strong public demand for economy, a cry especially supported by the farmers. It may seem curious that the growing political influence of the farmers was a disadvantage to the idea of agricultural education, but the explanation seems to be that the farmers' movement had a social character which was directed against the upper classes, to which the founders, the directors and the teachers of the agricultural schools belonged. Want of really advanced educational ideas prevented the

farmers from understanding the advantages of a formal education in agriculture and the teachers from giving instruction in such a form that prejudices for old practices could be overcome.

NUMBER OF AGRICULTURAL SCHOOLS

Year	Lower-grade agricultural schools	The Agricultural School at Aas	Smallholding schools	Together
1825.	1	—	—	1
1840.	2	—	—	2
1850.	12	—	—	12
1857.	18	—	—	18
1860.	16	—	—	16
1870.	8	—	—	8
1877.	5	—	—	5
1880.	6	—	—	6
1890.	8	1	—	9
1900.	19	1	—	20
1910.	20	1	—	21
1920.	31	1	6	38
1925.	34	1	6	41

But the standard both of general and of vocational education began to improve. The School of Agriculture at Aas had now been in existence long enough to provide the remaining schools with more qualified teachers, and the Government also showed an increasing interest in the question; the number of agricultural schools began to increase. Much emphasis must be laid upon the Parliamentary decision of 1893 to pay three-quarters of the expenses of the schools in future, as against the half previously paid. An Act of 22 May 1897 reorganised the Agricultural School in Aas as a real higher-grade School of Agriculture: the qualifications for admission were raised in 1919, and the principle of making the School a direct continuation of the instruction given in lower-grade agricultural schools was introduced. This was possible because instruction in these schools now included more theory. Before the outbreak of the war the number of schools began to increase, did so more rapidly between 1914 and 1919, while even during the financially difficult post-war years more schools were founded, so that Norway has now more agricultural schools than ever before.

The proposal to provide better vocational education for small-

holders, as was being done in Denmark, dates back to 1907; but nothing was done before 1914, when the Storting voted the establishment of the Norwegian School for Teachers in Smallholding. The smallholders' schools subsequently created at five of the people's high schools and schools for youth were not so successful as the later independent smallholders' schools, of which two were established in 1917 and two in 1923.

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SWEDEN

Authority and administration; organisation; extent of agricultural education.—Agricultural education is one of the subjects which come under the designation of "Administrative and Economic Legislation" and which therefore, under the Swedish Constitution, are regulated directly by the Crown without necessarily being deliberated upon by Parliament; Parliament nevertheless controls the necessary credits. There are no general Orders dealing with agricultural education. As occasion arises the Ministry of Agriculture drafts proposals to, and carries out orders from, the Crown; the Board of Agriculture (which is a separate authority from the Ministry) carries out investigation and research work and administers Regulations.

Elementary schools provide no agricultural education, but in the continuation schools, at which attendance is now compulsory, vocational agricultural education can be given, but is not available in all districts. Vocational agricultural schools are reserved to adults. A distinction is made between schools which train for a career as bailiff and other employee work, and farmers' schools intended for future farmers. Higher agricultural education is given at two State institutes; agricultural high schools proper do not exist in Sweden. Except for the two agricultural institutes agricultural vocational education is organised by private institutions which receive considerable State grants. Extension work is partly carried on through the provincial agricultural societies, which receive State grants for this work also.

The number of students leaving the farmers' schools each year corresponds only to 1 per cent. of the 90,000 farmers in Sweden cultivating holdings over 10 hectares in area, not to mention those cultivating the 200,000 holdings between 2 and 10 hectares.

Elementary education in rural districts.—No vocational agricultural education is given in elementary schools, but as far as possible each elementary school must have a school garden.

Continuation education.—None of the so-called higher elementary schools, which cater for about 6,500 pupils, at present direct their efforts towards giving an agricultural bias to their teaching, though under the regulations this would be possible. The same may be said of the people's high schools. Vocational agricultural instruction is, however, given in continuation schools. The continuation school is compulsory for pupils leaving the elementary school and not receiving further instruction in other schools. Continuation schools can either have a general curriculum or about one-half of the teaching can have a vocational bias towards agriculture, forestry, handicrafts, industrial, commercial, etc., instruction. Such vocational continuation schools are normally established where the local conditions offer promise of success, and the subject towards which the teaching in each school is directed depends on the nature of the principal local industry. It thus happens that youths living in a district where the continuation school teaching is directed towards agriculture are obliged to visit this school even when they themselves follow a trade other than agriculture. The course lasts for two years with a minimum of 360 hours' instruction, which can be divided over the year and the week according to local convenience. In mixed schools, where boys and girls are taught together, special attention is paid to those branches of agriculture which are important to women workers: animal husbandry, dairy work, horticulture, etc.; this naturally means restrictions on other subjects. The continuation school in its present form did not become obligatory before the end of 1926. In 1926-1927 there were 7,671 continuation classes, of which 2,509 were vocational, and of these 653 were agricultural.

Vocational Agricultural Education

Lower-Grade Agricultural Schools

(a) *Agricultural Schools.*—There are 12 Agricultural Schools, 9 in South and Central Sweden, and 3 in North Sweden. These schools are private schools receiving Government grants: 10 are established at large well-run farms under contracts concluded between the farmer and the Royal Agricultural Board; and 2 at the Agricultural Institutes mentioned below. Most of the schools are under the control of a body representative of the Board of Agriculture and the provincial agricultural society in the district where the school is situated, and all are governed by two sets of Regulations first issued on 19 October 1911.

The purpose of the nine schools in South and Central Sweden is to teach a fundamental knowledge of the agricultural industry and to afford practice in the arrangement, conduct, and execution of agricultural work. Special stress is laid on training the students' working ability and their judgment and teaching them to plan the use of farm labour. There is a two-year and a one-year course. Students must be eighteen years of age, have some general education, and have done farm work for at least a year. The two-year course is specially intended for the training of bailiffs and farm-foremen. At least 200 hours

are given during the first year to subjects of general education; in the second year practice in foremen's work is provided. Both theoretical and practical instruction is to some extent given in common in the two courses.

The less complicated nature of agriculture in North Sweden makes it possible to give less comprehensive instruction in the three Agricultural Schools there established. Smallholdings predominate and there is less need for bailiffs and foremen, for whom the longer courses at the schools in South and Central Sweden are specially intended. The entrance rules are practically the same; those who have done agricultural work for a longer time have first right of entry. The courses are a one-year course combining practice and theory and a winter course in theory only, theoretical instruction being the same for the two courses, namely, at least 120 full days and 800 hours. Students take their turn at the practical work in the stables and sheds and in the carpentry room, and one day per week is devoted to practical exercises and demonstrations in the neighbourhood, if possible also in forestry; 50 hours' repetition in theoretical knowledge is given towards the end of the longer course.

The number of students in these schools has never been high, and for 30 years has shown a tendency to decline; it is now about 325. In 1923-1924, 196 students followed the two-year course and 25 the one-year course in South and Central Sweden, while 35 followed the whole course and 7 the winter course in North Sweden.

(b) *Farmers' schools.*—These schools, which are governed by Regulations of 5 December 1919, give theoretical instruction only; a school farm is not operated by the labour of the students, as is the case with the Agricultural Schools. They pay special regard to the conditions at undersized and small farms. In other words, the courses are intended for sons of farm owners and occupiers who are supposed to have got sufficient all-round training at practical work at home.

These schools are of two types, differentiated by the qualifications of the students entering them. For entering a farm school of the lower type (B-school), the same qualifications are required as for entering the two-year course at the Agricultural Schools, namely, an elementary school education and some agricultural practice; for the higher type (A-school) more mathematics is demanded and also some physics and chemistry and drawing. In both types of school there is one principal course per year, lasting at least 125 weekdays during the season most convenient for the district. A second course of the same type, or a longer course lasting at least 215 weekdays, or a continuation course lasting at least 95 weekdays, can also be arranged. The subjects taught at both types of schools are the same, but the instruction must, of course, be adapted according to the difference in the standing of the students. The curriculum conforms very much to what is taught on the theoretical side of the Agricultural Schools, with certain additions, e.g. building construction, citizenship, agricultural economics, etc. Students pay for board and education. Though the schools give no practical instruction, some possess a demonstration farm, or demonstrations are given at neighbouring farms. All schools arrange excursions to well-run farms or agricultural institutions.

Farmers' schools have mostly been founded either by the county councils or by private school societies; generally they are attached

to a people's high school. There exist 19 schools of type A and 36 of type B; the first are, on the whole, a little smaller. The total number of pupils is a little below 1,000; this is considerably more than before the war, but not so high as during the war and the first post-war years.

Most of the schools confine themselves to the principal course; only one B-school has a second year course, two A-schools and one B-school have the longer course, and one A-school and one B-school have a continuation course.

It is the farmers' schools which provide theoretical training for the general farming community; the Agricultural Schools described above cater almost wholly for bailiffs and foremen, while the Agricultural Institutes (see below) are not attended by the ordinary farmer.

Higher Agricultural Education

The two State Agricultural Institutes at Alnarp in Scania and at Ultuna near Upsala are governed by Regulations of 20 June 1928. To either Institute, as already stated, is attached a lower-grade Agricultural School, also a large model farm, and some other practical departments, such as a lower-grade dairy school at Alnarp. The purpose of the Institutes is to give an agricultural instruction based on scientific studies. There are two courses, a two-year course for teaching the theoretical knowledge necessary to the running of a large farm—this is a course for the training of future farmers—and a one-year course for agricultural advisers, which is in the nature of a continuation course and intended for officials, teachers and others wishing to perfect their scientific knowledge. At Ultuna there are two divisions of the adviser course, at Alnarp three, a separate dairy course, a crop production course, and an animal husbandry course. Candidates for admission to either Institute must be eighteen years of age, and must have at least two years' serious experience of farm operations; they must have attained certain standards of secondary education; admission to the advisers' courses (except the separate dairy course) implies previous successful attendance at a general course at one of the two State Agricultural Institutes. Some of the people's high schools hold special preparatory courses to assist intending candidates whose standard of general education is not sufficient. Instruction is theoretical only. The total number of students in both Institutes is about 110, which means that about 50 pass the final examinations each year.

Special Institutions

(a) *Training courses for live-stock foremen and swine herds.*—These courses are either practical or theoretical. Practical courses last one year and are established at private farms, where the farmer gives the teaching; in 1925-1926 there were 18 live-stock courses attended by 55 students. Theoretical courses are held at Agricultural Schools and last about a month; in 1926 there were 4 such courses attended by 54 students, who had all followed the practical course also. Similar courses are arranged for swineherds; in 1926 one practical course was established with one student, who also took part in the theoretical course given in the same place; this course was followed by five other students. Students must be nineteen years of age, be of good physique and have had at least one year's serious experience. They receive

free board and lodging for themselves, also for their family if they are married, and a sum in cash.

(b) *Training courses for women live-stock tenders in Norrland and Dalarne.*—In Norrland and Dalarne women are generally in charge of the live-stock. Special courses on their behalf can be established at the Agricultural Schools, small schools of domestic science or at similar centres. The course lasts two and a half months, instruction being both practical and theoretical. In 1926 four centres each held two courses; the total number of students was 39.

(c) *Training courses for assistant milk-recorders.*—Farmers' associations are accustomed to engage assistant milk-recorders to control the milk yield of members' cows and give advice on the care of the herd. Courses are held at the farmers' schools, lasting six weeks, half the time being given to practical and half to theoretical instruction. In 1926, there were 9 such courses attended by 226 students, of whom 56 obtained engagements almost immediately.

Agricultural Extension Education

A feature of Swedish agriculture is the official character of agricultural organisation. There is a statutory organisation of agricultural interests for all counties dating from 8 June 1923; in addition, the rules of each county agricultural society—there are two in some countries—are approved by the Crown. Agricultural extension education is organised by these county societies, either in the form of short courses or through individual advice given by agricultural advisers. Most of the courses are specially intended for smallholders.

(a) *Courses on smallholding management*, for the public in general, lasting at least six days with one day's special course for women; not more than two weeks must elapse between the lectures.

(b) *Courses for specially admitted men students (though also open to women).*—Students must have been engaged in agriculture for at least two years and preference is given to cultivators of a holding not exceeding 15 hectares of arable land. Courses take place at the Agricultural Schools or other centres where a well-cultivated smallholding is available for demonstration purposes; a special course can be arranged devoted to a particular branch of agriculture and its subsidiary occupations. In practice there are more of these short courses and of special courses in book-keeping, drawing, and horticulture.

	1924	1925	1926
12 days' agricultural courses.....	11	11	14
6 days' agricultural courses.....	85	78	91
Shorter agricultural courses	65	28	65
Special courses	34	46	64

The courses are well attended, the average number of students varying from 20 to 400.

(c) *Study journeys for smallholders.*—Under the same legislation as that governing the courses mentioned in the preceding section, journeys are arranged under expert guidance for smallholders to see model farms, experiment stations, etc. For journeys in the district applicants must be farmers of not more than 15 hectares of arable

land; for the longer journeys to Denmark and Norway, of not more than 40 hectares of arable land; special regulations apply to women applicants. The number of applicants is always considerably in excess of the number of places, which vary a good deal from year to year. In 1926, 17 local journeys were arranged for men (123 participants) and 6 for women (120 participants); further, 22 longer journeys (lasting up to a fortnight) for men (302 participants) and 7 for women (88 participants).

(d) *Moorland cultivation courses*.—Every year the Moorland Cultivation Society arranges a two-day course in moorland cultivation, and the Swedish Society for the Improvement of Prairies and Pastures usually arranges two six-day courses in the cultivation of permanent grazing fields.

(e) *Boys' and girls' clubs*.—The Association of Agricultural Youth was founded in 1918 to encourage the younger population of the countryside to interest themselves in agriculture and to raise their qualifications for this calling. This Association, which soon received a State grant, in 1925 took the initiative, together with the International Education Board, of introducing boys' and girls' clubs in Sweden. In 1927 these clubs had been started in eight counties, with a total club enrolment of 1,036 members (691 boys and 345 girls). The International Education Board employed 8 Swedish agricultural advisers and 2 home economics advisers. In the autumn of 1927 the Ministry of Agriculture appointed a Club Committee, which later will take over the guidance of the work.

(f) *General advisory work*, in the course of which special attention is paid to smallholding, is organised by the agricultural county societies; there are also Government advisers in the most important branches of agricultural science, but these officers do not spend much time on ordinary advisory work to individual farmers; they supervise, however, the work done by the societies. In 1926, 56 county advisers were in the employ of the societies. They are assisted by the so-called itinerant foremen. These are men of the peasant class, well acquainted with the habits and feelings of their district; they visit the farms, ask to be allowed to take part in operations in order to demonstrate their methods, make all needful suggestions, and in general understudy the agricultural advisers. In 1926 there were 73 foremen.

Appendix: History of Agricultural Education

When the question of vocational agricultural education was discussed for the first time in Sweden about 1800, the idea was to arrange such instruction at the Universities. The attempt, however, failed. The next step was made by two of the provincial agricultural societies, which themselves came into existence at the beginning of the nineteenth century; they established, in the 'twenties, two model farms combined with an agricultural school; both these schools failed also. It was not until 1834 that an Agricultural Institute was created by private initiative, to which State grants were given until 1853. A second Institute was founded soon after. Both Institutes had courses for those who had had a good general education and also for those who had attended the elementary school only and who would naturally

become peasant farmers or foremen on big estates. The number of Institutes, however, was quite insufficient; in 1840 Parliament voted money for the creation of Agricultural Schools, which reproduced more closely the farming conditions under which those who attended them would afterwards have to operate. Nevertheless, at this time current opinion still held that it did not demand more than ordinary human intelligence to cultivate the soil and that an agricultural education on a scientific basis was only of value to the educated and possessing classes.

Parliamentary interest was also shown in higher vocational education. The Agricultural Institute at Ultuna was created in 1848 and that at Alnarp in 1862. Both Institutes gave an advanced theoretical and practical course and a practical course. This was not felt to be satisfactory, and in 1882 the advanced courses were made exclusively theoretical and the lower courses transformed into an ordinary Agricultural School. The creation of an Agricultural High School has been much discussed, but not yet carried out.

The number of Agricultural Schools was five in 1840; and in 1862 there was a school in each county, but the number has since steadily declined. These schools did not satisfy that part of the population which did not want to be educated as foremen nor to pay for their instruction by their labour. Following on some tentative efforts made at the people's high schools, the farmers' schools were first established in 1882; many are still attached to people's high schools. Since 1912, farmers' schools of type B, which demand ordinary elementary school education only before entry, have also been established.

Voluntary continuation classes were introduced in 1877, but the instruction given was mainly a repetition of what was taught in the elementary schools. The present type of continuation education dates only from 1918 and was not completely introduced before the end of 1926. Money for special measures for smallholdings was voted for the first time in 1901; the various special courses are of still more recent date. Even before 1904 the county agricultural societies and the county authorities had engaged agricultural advisers and itinerant foremen. In that year a committee drew attention to the great demand in Northern Sweden for agricultural education exactly adapted to local requirements — a demand which took precedence even of any requests for direct subventions to agriculture. Government grants were therefore voted for advisory and itinerant staff in this part of the country, and this system was later extended to the whole country.

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FINLAND

Authority and administration; organisation; extent of agricultural education.—Agricultural education in Finland is a matter for the Board of Agriculture, with the exception of the instruction given at the University of Helsingfors. The University is not, like the general education system, administered under the Ministry of Education, but is self-governing.

Up to 1927 the various types of agricultural schools had been organised under separate Decrees. An Act of 1 July 1927 enumerates the various types of agricultural education institutions, which can be State or private institutions or belong to associations of a private character; if private institutions receive State grants, they come under State control. New Regulations were issued under the Act for the various types of schools on 30 December 1927.

Agriculture is included both in the elementary and the continuation school curriculum. Some practice is insisted on before proceeding to the lower-grade agricultural schools, of which two types exist with one-year and two-year courses respectively. From the lower-grade schools the students can proceed to the intermediate agricultural schools.

The number of pupils annually completing their studies at the lower-grade and intermediate schools are respectively about 1,000 and about 120, nearly all men—this out of an agricultural population of about 250,000 farmers in 1920, of whom 56,000 held more than 10 hectares and 100,000 from 3 to 10 hectares. Short courses of a few days' duration for small-holders are attended annually by more than 10,000 persons. Another important form of vocational agricultural education is the schools for training live-stock staff, attended almost exclusively by women (annually about 600), who preponderate greatly in this occupation.

Elementary education in rural districts.—Attendance at an elementary school is compulsory from the seventh to the thirteenth year. The elementary school consists of two grades, the lower school covering the two first years, and the higher covering the remaining four; up to 1918 lower schools did not exist in country districts; the children were assumed to receive their first instruction at home, in church schools for small children, etc. Many rural lower schools have now been established, but their number is still only one-third of that of the higher schools in the countryside.

Among the obligatory subjects taught are agriculture and domestic economy. (But in districts where agriculture is not a principal industry, a subject more nearly allied to local economic life can be taught with the permission of the school inspector; this, however,

rarely happens in the country districts.) This instruction is specially given in the two highest classes. The pupils of these classes cultivate the school garden under the direction of the teacher. In some schools the pupils also have their own plots, or a plot at home which they cultivate according to the instructions of the teacher. Theoretical instruction is attached to this practical instruction, comprising 30 to 40 hours in the two highest classes (15 to 20 hours per year). Visits are made to well-cultivated farms and gardens. Further, efforts are made to link up instruction in other subjects with local conditions. In this way, elementary zoology is based on the study and care of domestic animals; botany, chemistry and physics are taught in relation to practical agricultural problems. Manual work and drawing are similarly taught in a way to contribute to agricultural knowledge.

Continuation and secondary education.—Attendance at continuation classes is compulsory for all pupils who do not continue their studies in other ways. In rural districts these classes are arranged at the elementary school. Originally the instruction was mostly a repetition of knowledge required in the elementary schools. The classes now last two years with at least four hours', and at the maximum six hours', instruction per week during 25 weeks per year. Instruction is mostly arranged with practical life in view. The chief subjects are literature, instruction in citizenship, and agriculture, as well as domestic economy and handwork. The same possibility of replacing subjects by others corresponding to the needs of the district exist as in the case of the elementary school.

Agriculture is taught in some secondary schools. In these schools instruction in natural sciences is given a bigger place than in other secondary schools and is specially adapted to agricultural problems.

The Folk High Schools founded on the Danish pattern may be mentioned. In 1924-1925 there were 52, attended by 741 men and 1,751 women, mostly children of farmers.

Vocational Agricultural Education

Apprentices

A feature of the vocational agricultural education system is the insistence at some time on residence at approved farms as learners; approved farms are under the control of the head of the agricultural school in the district.

The scope of the system is shown below :

	1925	1926	1927
Approved farms.....	328	337	362
1-year learners	12	15	17
6-month learners	601	626	644
Learners whose residence at an approved farm has been interrupted.....	32	32	31
Together...	645	673	692

Lower-Grade Agricultural Schools

(a) *Farmers' schools.*—These are State or State-subsidised schools, but the initiative is taken either by a commune, an agricultural society or other organisation, or by the Board of Agriculture, the decision resting with the Council of State. The purpose of these schools is to awaken the interest of the pupils in agriculture, and to give them an elementary instruction in agriculture adapted to local conditions. Pupils must be seventeen years of age, have attended the higher elementary school, and have at least half a year's practical agricultural experience; preference is given to candidates who have attended a Folk High School or have a practical training certificate as learner on an approved farm. Only a small percentage of the pupils have other general education than that of an elementary school. The course lasts a year, including five and a half months' practical training on an approved farm during the summer. The curriculum is a mixture of vocational agriculture (local bias), general subjects, handicrafts, etc. Visits to farms are arranged. The schools are boarding schools, charging fees. In 1927 there were 29 farmers' schools, three being State schools. Two of these are smallholders' schools, but no special rules are in force regarding them. In 1925, 1926, and 1927 there were 651, 845, and 928 students of whom 46, 52, and 43 were women (in four schools). The average age of the pupils was $21\frac{1}{2}$ years; 406 pupils received scholarships in 1927. In that year 806 students were children of farmers, 70 of agricultural workers and 52 of persons in other occupations.

(b) *Agricultural Schools.*—There are State schools established on State farms; a few private schools of this type exist, but in the future only State schools may be founded. These schools train independent farmers, managers and bailiffs; they give more advanced education than the farmers' schools. Students must be eighteen years of age, have attended a higher elementary school, and have had one year's agricultural experience; few students had had more than the elementary education which is a minimum. The course lasts two years. Practical instruction lasts a year, during which pupils carry out all the work on the school farm (each pupil having an opportunity to do every kind of work) and receive two hours' daily theoretical instruction during the six winter months in vocational agricultural and in general subjects. During this year pupils are lodged and boarded free at the school. Theoretical instruction, which includes some practical exercises, also lasts a year and is the same as at the farmers' schools; arrangements are very slightly different at the private schools. During this year theoretical instruction, as well as board and lodging, has to be paid for, but in 1927 almost all pupils in the second year's course had scholarships. There are seven Agricultural Schools, of which four are State schools. In 1925, 1926, and 1927 there were 293, 292 and 310 students, none of whom were women; 118 obtained the school certificate in 1927. Of 154 new pupils in 1927, 98 were sons of farmers, 28 sons of workers, and 28 sons of persons in other occupations.

Intermediate Agricultural Schools

(a) *Farmers' institutes.*—Farmers' institutes are State institutes established on State farms. They train persons who have already

passed through an Agricultural or Farmers' School, and have afterwards had agricultural experience for at least a year under supervision, also persons who have passed through at least a lower-grade general secondary school and have had subsequent agricultural experience for one and a half years. Students must be eighteen years of age. The course lasts two years, including two summers' work as a learner on an approved farm. The instruction comprises, besides general and agricultural subjects, business correspondence, etc., and also land surveying exercises. Students are trained in practical advisory work. Instruction, board and lodging are paid for. There are two farmers' institutes. In 1925, 1926, and 1927 there were 134, 137, and 137 students. In 1927 65 obtained the school diploma, 38 obtained scholarships; of 71 new students, 65 had passed through lower-grade agricultural schools, 56 were sons of farmers, 2 of workers, and 13 of persons of other occupations.

(b) *The Agricultural School at Åbo.*—To be classified with these institutes, but organised a little differently, is the Swedish-speaking Intermediate Agricultural School in Åbo. The course is arranged for students having attended a secondary school for five years. The entrance rules also demand a year's agricultural experience which, however, need not be taken till after the first year's course. The course lasts three years. In the holidays some practical work must be done. The course also gives instruction in Swedish, Finnish, German, Finnish history, and citizenship, and is in this way more general than at the farmers' institutes.

Higher Agricultural Education

The most advanced agricultural education is given at the Agricultural Economics department of the University of Helsingfors. The number of students in this department was 306 in 1926. Various Degrees can be taken, a lower and a higher diploma, and a special certificate in agricultural science. Before attaining the latter or before going in for the lower diploma, the student must have performed at least one year's practical agricultural work; to obtain the higher diploma, the student must have managed a farm for at least a year. The certificate is demanded of the teaching staff of the various schools of agriculture. The Degree of Agricultural Engineer can be taken at the Polytechnic Institute after preparation either at the Institute or at the University.

Special Institutions

(a) *Itinerant agricultural schools.*—Finland possesses several itinerant schools, more especially intended for the frontier districts in the North. The schools give short courses varying from two weeks up to seven to nine weeks; a single school gives a longer course up to half a year. The courses are open to men and women, and give theoretical and practical instruction in the care of live-stock and in manual work. Where women students are numerous, a woman teacher in needlework is employed, and sometimes also in domestic economy. In 1927 there were seven itinerant schools, of which five worked in

the frontier districts and two elsewhere; one of these is an itinerant smallholders' school. One of the schools has a woman director and is attended by women only. The number of courses was 21 in 1927, attended by 233 male and 227 female students.

(b) *Smallholders' courses.*—All farmers' schools, whether stationary or itinerant, arrange short courses (three to four days) for smallholders. State grants are given for these, part being used to assist participants in the courses, and to award prizes. The importance of these courses is shown in the following table :

	1925	1926	1927
Number of courses.....	265	309	350
Number of days' instruction.....	691	814	1,165
Number of students.....	9,085	14,402	12,973
Average number of courses per school ...	8.3	9.1	10.9
Average number of days' instruction per school.....	22.3	24.0	36.4
Average number of students per course ..	34.7	46.7	37.1

(c) *School for Rural Crafts.*—A private school is in existence for rural crafts. It is owned by the Smallholdings and Own Homes Society, but receives State grants. The school has a small farm and well-equipped wood and metal workshops. It is open to boys of fourteen to fifteen years of age, just leaving the elementary school. The course lasts two years. The pupils all work in the school. There were 23 pupils in 1927.

(d) *Live-stock management schools.*—Finland has a very well developed system of lower-grade schools for live-stock management. There are three types of these schools.

Schools of theory for stockmen, belonging to the State or to agricultural societies.—They train persons intending to take charge of live-stock as a profession and give smallholders instruction in the care of live-stock. Students must be eighteen years of age and have passed through the higher elementary school. Practical instruction consists of at least one year's learning on an approved farm where practice in all kinds of work in connection with cattle, pigs, sheep, and poultry can be obtained. The farm provides board and lodging free and the society owning the school pays a cash wage. Theoretical instruction follows, lasting six months; fees are paid. There are also two-month courses for milk recorders. Students must have passed through a school for stockmen and afterwards have had at least one year's practice as cattlemen. Shorter courses up to four weeks' duration can be arranged in order to awaken the interest of smallholders in

live-stock tending. The extent of the activity of these schools in 1927 is shown below :

	Number of schools	Students		
		Men	Women	Together
Approved farms.....	280	10	598	608
Schools of theory, having—				
stockmen's courses.....	15	4	541	545
milk recorders' courses.....	13	7	152	159

Schools of practice and theory for stockmen.—The arrangements and rules are much the same as for the previous schools; at a private school there must be at least eight cows per student. The course lasts one or two years. Board and lodging at the school is free.

	Number of schools	Students		
		Men	Women	Together
Schools with 2-year course...	13	11	91	102
Schools with 1-year course...	13	—	20	20

Few students in live-stock schools of either type have received any general education beyond that of the elementary school. It is remarkable that they are nearly all women, even the milk recorders. About two-thirds or more are daughters of smallholders and small tenants and crofters, and nearly one-third daughters of wage-paid workers.

Itinerant schools for live-stock staff.—Such schools belong to agricultural societies. Pupils must be sixteen years of age and be considered capable of following instruction. The schools are specially intended to give smallholders elementary instruction and practical training in rational care of live-stock. The school is open at least seven months a year and never more than six months in the same place. Fees are charged. There are five schools, which in 1927 held 26 courses of an average duration of about a month, attended by 356 persons, of whom 6 were men and 350 women.

The Cattle Institute.—This is a secondary State school for live-stock care, training advisers and foremen for stock-breeding work. Students must be eighteen years of age and have passed through either a lower secondary school or have taken a course as milk recorder and be able to show a standard of general education equivalent to

that in such a school. The course lasts two years, of which one year is spent on an approved farm and 12-14 months in theoretical instruction at the school and in two months' dairy practice. Fees are charged. The theoretical course was being followed in 1927 by 2 men and 23 women, and the course for milk recorders by 3 men and 24 women.

A school for swineherds is established on the same lines as the schools for practice and theory for stockmen. It has various courses, followed in 1927 by 30 students—27 women and 3 men. Finally, there is a *school for horsemen* with a half a dozen pupils.

Agricultural Extension Education

Several of the courses mentioned above may be considered extension work. In many of the schools the teaching staff give extension lectures and demonstrations and act as advisers, or are engaged during the summer as advisers by agricultural societies. The agricultural societies play a big rôle in the agricultural education system. As stated above, many of them own agricultural schools, and the whole system of agricultural advisers comes under the societies; the State has only a few advisers in special subjects.

There are 22 agricultural societies, with over 1,000 local branches. They are organised in two central organisations, one Finnish and one Swedish-speaking, and employed in 1921 350 advisers, among whose duties is included the organising of co-operative societies, of excursions for smallholders, etc.

Boys' and girls' clubs have been introduced in Finland on the initiative of the International Education Board. The demonstrations of the Board began in 1926 with three demonstration districts and an enrolment of 223 club members. In 1927 there were six demonstration districts and 798 club members, 461 boys and 337 girls; six agricultural advisers and two domestic science advisers were engaged. Many local divisions of General Mannheim's Child Welfare Association started club work during 1927, as well as private agricultural societies; this local club work was carried on in 21 districts, mainly grouped around the demonstrations of the International Education Board, and had a membership of approximately 1,000. In the winter of 1927-1928 steps were taken to create a definite organisation of these clubs.

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Information from Mr. Frants P. LUND, Director of Extension Work, International Education Board, New York.

DENMARK

Authority and administration; organisation; extent of agricultural education.—The legislative measures in Denmark concerning agricultural vocational education are an Act on the Royal Agricultural High School and an Act on State Grants to Folk High Schools and Agricultural Schools of 29 April 1913, amended on 11 April 1919. Both Acts are administered by the Minister of Education; the Minister of Agriculture handles the grants given to agricultural extension education.

Neither the elementary schools nor the evening classes, which are a form of continuation schools, include vocational agricultural teaching in their curriculum. In the People's High Schools, which to some extent correspond to continuation courses in other countries, a limited number of lectures on agriculture are given; a few People's High Schools have a special agricultural department and are not unlike vocational agricultural schools proper. Lower-grade agricultural education is provided by winter schools, known as Agricultural Schools, which normally give a five to six months' theoretical course for adults. All schools are private, but practically all People's High Schools and Agricultural Schools are State-recognised and receive grants. More important than the direct grants to the school are, however, the funds available for scholarships; up to one-half the total number of students either at the People's High Schools or at the Agricultural Schools can receive State scholarships; it is therefore evident that the school which by its reputation attracts most students receives in this way the highest State assistance. No intermediate agricultural schools exist, but one Agricultural School offers an 18-month course; and two others also now offer longer courses. Higher agricultural education is given at one institution. Extension work is carried on by agricultural associations which engage a staff of advisers; the State engages 12 advisers and gives grants to the associations for extension work.

The total number of youths attending People's High Schools in 1925-1926 was about 3,000, attending Agricultural Schools 2,050, in addition to the 200 students attending the agricultural departments of the People's High Schools; it has been calculated that in that year about 35 per cent. of one annual class of rural youths were attending one of these schools (40 per cent. in 1920-1921 before the agricultural crises set in), and that 16 per cent. were attending an Agricultural School. The total number of agricultural holdings is 206,000, of which 109,000 are below 10 hectares.

Elementary education in rural districts; continuation education.—Elementary education in Denmark, which is compulsory for all children between seven and fourteen years of age, includes no vocational agricultural teaching; in some of the town schools only are there school gardens.

No complete system of continuation schools exists in Denmark, though such classes can fairly frequently be found in the towns. All that exists in the countryside is evening instruction given once a week under the School Act of 1814. Though this education has been of considerable importance from the general educational point

of view, it has no bearing on vocational training. Much more stress must be laid on the People's High Schools, which are private schools, recognised by the State, recognition being given to the head of the school personally, when further certain conditions as to the age of pupils (not more than 25 per cent. under eighteen), and as to length of course (not less than five months) are fulfilled. The aim of the People's High Schools, which hitherto have only been of importance to the rural population, is not so much to convey knowledge as to develop the intellectual life of their pupils and to enable them to return to their daily work "with a deeper understanding of human life and its problems". Pupils are always adult. A winter class of five months' duration is given for young men, and a summer course lasting three months for women. The education given is general, but nearly all the men's courses include some agricultural subjects. In 1925-1926 59 People's High Schools existed, attended by 3,229 male students; of 49 general five-month courses given in these schools 46 included lessons on agricultural subjects, covering on an average 48 hours per course varying from 20 to 240 hours; in addition, 35 courses included instruction in land surveying, covering on an average 15 hours per week. Four People's High Schools had special agricultural departments attended by 208 male pupils, of whom 189 were between eighteen and twenty-five years of age; 137 were sons of farmers, 42 of smallholders, only 4 of workers. In the People's High Schools in general 7 per cent. of the pupils came from wage-paid workers' homes, while of the 1,198 male students who received scholarships, 158 were sons of farmers, 482 of smallholders, 168 of wage-paid workers, 172 of artisans.

Vocational Agricultural Education

Apprenticeship

With few exceptions the Agricultural Schools (see below) give no practical training. Sons of peasants are usually first trained at home and then sent for two years to a large well-managed peasant farm or estate where they work as ordinary workers; sons of large estate owners are apprenticed to large estates. Apprenticeship generally lasts three years, often, however, spent on different farms. Apprentices sometimes receive a certain amount of theoretical instruction during the winter evenings. Payment is made when it is desired that apprentices should live with the family of the person managing the estate; on the other hand, an apprentice who is already accustomed to farm work may sometimes obtain a small remuneration. The arrangements are copied from the formal apprenticeship system instituted by the Royal Agricultural Society as long ago as 1820, which still exists. The Society places apprentices for three years on three different farms of high standing, one year on each. Apprentices must be seventeen years of age and have had one year's previous practice in farm work. Their training is supervised by the Society, which receives reports from the employers, and examines and criticises carefully diaries kept by the apprentices. Diplomas are given on satisfactory reports, and scholarships awarded to the most promising apprentices enabling them to attend an Agricultural School. Apprentices receive a salary during the period of their training. The number of apprentices trained by the Royal Agricultural Society is not great,

but the system has the effect of setting a high standard of training for young farmers. A two-year apprenticeship on peasant farms and a three-year apprenticeship course for stockmen have not met with the same success.

Another form of apprenticeship is the Government grants to promote smallholding given to provide practical training in subsidiary branches of agriculture on approved farms; in 1923 such grants were given for training on 19 farms. The grant is paid to the approved farm, which has to provide board, lodging and the necessary instruction; students may be required to assist with any farm operation.

Lower-Grade Schools

Agricultural Schools.—These give theoretical instruction to future farmers. Most of the schools are the property of the persons directing the teaching; a few belong to special associations. The Agricultural Schools are State-recognised and receive grants under the same Acts of 1913 and 1919 as govern the People's High Schools. Students are usually eighteen years of age, or older, one-fourth being over twenty-five. No formal rules of admission exist; 25 per cent. of the students have attended a People's High School, the rest have only had an elementary school education. The total number of students at Agricultural Schools who have previously attended a People's High School, though increasing, does not keep pace with the increase in attendance at the Agricultural Schools themselves; the present proportion of 25 per cent. who have received this previous general education may be contrasted with the proportion of 40 per cent. which obtained some years ago, in 1904-1905. Such previous attendance at a People's High School is generally recognised as desirable, partly because the educational methods used in the Agricultural School are similar to those used in the People's High School, partly because the pupils from the People's High Schools are considered to have had their intelligence more "awakened". The Agricultural Schools are boarding schools and have farms attached, but no practical instruction is given. Schools have five- and six-month courses; a few have a three-month continuation course, so that the total length of a course may be nine months. All schools give some general education, in the five-month course, about one-third, and in the six-month course, about one-fourth, of the time being devoted to such education. There is no final examination.

Two schools have recently arranged courses of a new type. One school has a twelve-month practical and theoretical course; during every other week during the summer term students help in all the agricultural and horticultural work of the school. Another school has arranged in addition to the five-month theoretical winter course, a ten-month course covering two winter terms, the students spending the intervening summer on the best-managed farms in the neighbourhood, the farms being selected by the school; they are required to perform certain duties in their leisure hours on these farms in order that they may derive the greatest possible benefit from their stay.

There are 19 Agricultural Schools; of these eight had both shorter and longer courses in 1925-1926. Four schools are specially intended for smallholders and have short courses only; in these schools special

stress is laid on subsidiary agricultural industries such as horticulture, poultry, beekeeping; otherwise the organisation of these smallholding schools does not differ from that of other Agricultural Schools. In 1925-1926 the total number of students attending shorter courses was 1,810, and attending longer courses 255, together 2,065. The following table shows the parentage of the students and the number holding scholarships :

	Year 1925-1926	
	Total number of students	Holding scholarships
Sons of farmers	1,061	138
„ smallholders	191 ¹	228 ¹
„ wage-paid workers.....	27 ¹	41 ¹
„ artisans	96	39
„ others	227	115
Not indicated	463	—
	2,065	561

¹ The excess of scholarship holders over “total number of students” in these two classes shows that a good many sons of smallholders and wage-paid workers must be included in the class whose parentage is “not indicated”.

The Agricultural School at Näsgaard.—This School is the property of a Foundation; until recently it was the only agricultural school in Denmark which gave practical instruction. Students must be at least eighteen years of age; they must have an all-round knowledge of farm work and also a good school knowledge of Danish and arithmetic. Theoretical instruction only is given during two winter terms of five months each; other instruction which cannot be given during the winter and practical training are given during the intervening seven months. Students are divided into two groups, working one week in the fields and one week in the classroom; during the harvest all students take part in harvest operations. In all there are 12½ months’ theoretical instruction and 4½ months of practical work. The course concludes with an examination on which a certificate is awarded; on this point, as on many others, the School differs from other agricultural schools in Denmark. Twenty-five students are admitted to each course.

Higher Agricultural Education

Denmark possesses one advanced school of agriculture, the Royal High School of Veterinary Science and Agriculture, at Copenhagen. The rules of admittance for the general course demand only that students should have had at least three years’ agricultural practice after completion of their fifteenth year of age, or two years’ practice after their seventeenth year. The first and general course, which is theoretical and purely vocational, lasts 2½ years. A diploma is granted on examination at the end of this period. Students who pass this examination with distinction and who have previously matriculated at the University, or who possess a lower secondary school certificate or who have passed a special entrance examination, are entitled to follow a further course either in agricultural sciences,

crop production, or in animal husbandry; these courses, which are specially intended for agricultural advisers, directors of experimental stations, or teachers at agricultural schools, last $1\frac{2}{3}$ years; special advanced courses, arranged separately for each student, may be taken after this.

An alternative course of study is in land-surveying. Rules of admittance as for the advanced general course; no previous agricultural practice is demanded; this course lasts $4\frac{1}{2}$ years, including ten months' practical instruction as assistant; a diploma is granted on examination; students who pass with distinction may follow a yet more advanced course in rural engineering which lasts $1\frac{1}{2}$ years.

Tuition fees are payable, but about one-fourth of the students hold scholarships given by the High School, which are often supplemented by bursaries from various private foundations.

The number of students is shown below.

	1924-1925	1925-1926	1926-1927
General agricultural courses .	144 ¹	134 ¹	114 ¹
Diplomas awarded	43 ²	55 ²	27
Land-surveying courses	49 ¹	45 ¹	44
Diplomas awarded	6	7	5

¹ Including one woman.

² Including two women.

Special Institutions

As already stated, some of the Agricultural Schools are specially intended for smallholders. In 1924-1925 four Agricultural Schools held special one-month courses for milk recorders and stockmen, attended by 57 students. These courses are also recommended as a kind of continuation course to those who have followed a five-month or a six-month course at an Agricultural School.

Agricultural Extension Education

Short courses are given at many Agricultural Schools, usually during the summer and usually in special branches of agriculture; of these short courses the 11-day courses for smallholders must be specially mentioned; farmers may arrange their own courses through the teachers of the Agricultural Schools. Numerous discussions and lectures are arranged by the agricultural associations, or by special associations formed for this purposes; statistics, however, are not available.

The principal corner-stone in agricultural extension education is, however, the system of agricultural advisers. The State pays 12 advisers in special subjects who, however, do not work under a State department, but under the Royal Agricultural Society, which centralises the whole system of agricultural advisers by arranging an annual conference of advisers. A further and larger staff of advisers are engaged by agricultural associations, which receive grants to cover part of their salaries. In 1922 there were 175 such agricultural advisers, of whom 120 were engaged by local peasant associations, the remainder by milk-testing and cattle-breeding associations or by

associations of smallholders. It is characteristic that the advisers are not all-round advisers in general agriculture, but specialists.

NUMBER OF ADVISERS IN 1922

Crop production	65
Animal husbandry	53
Book-keeping	27
Soil improvements	6
Plant production and animal husbandry	12
Plant production and book-keeping	7
Plant production, book-keeping and animal husbandry	4
Animal husbandry and book-keeping	1
Total...	175

The task of the Danish agricultural advisory system is therefore to bring the latest results of agricultural research to the notice of farmers, rather than to give beginners some notions of agricultural science; statements can be found to the effect that farmers cannot properly benefit from the system unless they have attended an Agricultural School.

A new feature in extension work is the boys' and girls' clubs, known in Denmark as the "Rural Economic Youth Movement". The initiative was taken by the International Education Board (New York) which, following an invitation of the Danish Minister of Agriculture, appointed a special adviser to make known this form of extension work in Denmark. The movement has from the beginning been organised with the help of the smallholders' associations and of the agricultural advisers engaged by these associations, especially of specialists in crop cultivation and horticulture. Membership has risen from 700, mostly boys, in 1924 to 1,500, of whom one-third were girls, in 1925, and again to 5,484, of whom 3,511 were boys and 1,973 were girls, in 1927. The Minister of Agriculture has decided to make club work a permanent feature in agricultural extension education and a special committee for this purpose has been set up; the committee administers a sinking fund given by the International Education Board. The State now pays grants directly to the various agricultural advisers and other assistants principally engaged on club work. In 1929 the number of such persons employed was four times the number so employed in 1926.

Appendix : History of Agricultural Education

The earliest teaching on agriculture given in Denmark was given between 1798 and 1841 in the form of lectures on agricultural economics at the University of Copenhagen. These lectures were, however, attended by students of law or theology who expected to get appointments in the countryside, rather than by farmers. In 1799 an Agricultural School was established at Näsgaard, which was intended to give a 4-year course; in spite of the fact that instruction, board, and even clothing were free, only one student presented himself and the school had to be abandoned. In its place an Agricultural Institute at Copenhagen was established, where agricultural lectures were given during the period 1804 to 1826; these lectures were relatively

well attended by farmers. In 1820 the Royal Agricultural Society initiated its apprenticeship system. In 1830 an Agricultural Institute was established by the State; it had at first nine students, but five years later it had ceased to exist. The Institute was not arranged on sufficiently practical lines, nor was the time yet ripe for such an undertaking. During the 'forties four agricultural schools were established, none of which exist to-day; courses lasted two years, the summers being used for practical instruction and the winters for theoretical; it was most difficult to get a sufficient number of pupils or of teachers, the latter because no institute for the training of agricultural teachers yet existed. In 1849 the school at Näsgaard was re-opened and has now functioned for eighty years. Up to 1907 the course lasted two years; it has since that date been reduced to eighteen months. In 1849 agricultural lectures were started at the Technical High School, and the Agricultural High School was established under an Act of 1856. The general course at the High School was fixed at $1\frac{1}{2}$ years and it was not until 1920 that it was prolonged by twelve months to $2\frac{1}{2}$ years. The first People's High School was established in 1844, but the true development of these schools took place after the war of 1864. At first the instruction at People's High Schools did not aim at being practical, but later on attempts were made to give instruction which could be directly applied by the students in their future careers; in this way various agricultural departments were established. But it was soon decided to create agricultural schools which should be independent of the People's High Schools. The progress made by the People's High Schools and by the Agricultural Schools is shown in the table below. It will be seen that both the number of the People's High Schools and the number of pupils attending them has lately remained fairly constant, whereas the Agricultural Schools are still on the upward grade.

Years	Folk High Schools		Agricultural Schools	
	Number	Male pupils (average)	Number	Male pupils (average)
1844-45-1850-51	2	—	4	—
1851-52-1860-61	11	—	5	—
1861-62-1870-71	50	—	7	—
1871-72-1880-81	64	—	10	—
1881-82-1890-91	67	—	13	—
1891-92-1900-01	73	—	11	—
1901-02-1910-11	82	3,317	19	1,129
1911-12-1915-16	71	3,151	22	1,313
1916-17-1920-21	60	3,761	21	2,225
1921-22-1925-26	59	3,241	22	2,566

The first agricultural adviser was appointed in 1862 by the Royal Agricultural Society as an adviser in dairying, but it was not until the 'nineties that it became common for the agricultural associations to employ agricultural advisers. By about 1900 there were 42 advisers employed by the associations, of whom five were advisers in crop

production and the rest in animal husbandry; the number of the former subsequently greatly increased. From about 1910 advisers in book-keeping have been engaged and since 1916 also advisers in soil improvement.

In 1924 boys' and girls' clubs were introduced.

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Information from Mr. Frantz P. LUND, Director of Extension Work, International Education Board, New York.

NETHERLANDS

Authority and administration; organisation; extent of agricultural education.—Agricultural vocational education is under the authority of the Minister of Agriculture. Encouragement is given to agricultural education both by agricultural organisations (including special organisations formed for this purpose) and by municipal bodies. All forms of agricultural education receive important State grants and are under State control.

Neither elementary schools nor continuation classes are obliged to attempt any vocational agricultural teaching. The most elementary agricultural education is given in the form of agricultural courses to youths and adults and in lower-grade agricultural schools, which are in the nature of vocational continuation schools; this education is carried on by private initiative. Intermediate instruction can be obtained at winter schools, which are partly State and partly private schools; if of a more advanced type it is given at State institutions, namely, the Intermediate School of Agriculture. The High School of Agriculture provides higher-grade agricultural education. Extension work is in the hands of State advisers and is carried on in collaboration with private organisations.

The number of farms over 5 hectares in the Netherlands is about 109,000; the annual number of pupils having completed vocational training in agriculture is about 5,000.

Elementary education in rural districts.—Agricultural science is occasionally taught as an optional subject in rural elementary schools; further, when the teacher in such a school possesses an agricultural diploma, instruction in natural science is oriented towards agriculture; interest in these lessons is stated to be increasing among countryside children.

*Vocational Agricultural Education**Lower-Grade Agricultural Schools*

(a) *General lower-grade schools.*—These schools, which are in the nature of continuation schools, can be established by local or national (provincial) associations for promoting agricultural education. The schools are subsidised by the State. The schools provide general and vocational instruction for young farmers and farm workers. Boys who have finished their elementary school course and have entered the occupation of agriculture and propose to continue in it are admissible as pupils. The number of pupils in a class must not exceed 24 in any case and must not be less than 10 if State grants are given.

The course lasts four years covering 40 weeks during the first two, and 30 weeks during the last two years; it takes place on two days a week during the first year, and thereafter on one day a week.

Continuation classes in special agricultural subjects can, if desired, be arranged after the fourth year. The school hours are arranged so as to avoid taking pupils away from any practical agricultural work in which they may be engaged. Instruction continues that given during the first four years on general farming and further includes elementary natural sciences in their relation to agriculture, elementary animal husbandry, dairy and agricultural economics and citizenship. Due regard must be paid to local agriculture. Most of the schools have a demonstration garden. Pupils pay for tuition, fees varying from 5 florins to a maximum of 60 florins, according to the financial position of their parents. Pupils without means may receive tuition entirely or partly free. In 1927-1928 there were 25 schools attended by 1,443 pupils, of these four were horticultural schools attended by 206 pupils and one was a mixed agricultural-horticultural school attended by 36 pupils.

(b) *General agricultural courses.*—These courses, which are arranged by organisations, are held as evening classes. Pupils must be fifteen years of age, and have been through an elementary school, and, as far as possible, have followed repetition courses. Courses last for two or three winter sessions, and cover at least six hours per week distributed over two or more evenings (114 to 225 hours per winter). Instruction is purely vocational. Pupils pay a small fee, but free instruction can also be obtained. In 1927-1928 616 courses were attended by 9,762 pupils.

(c) *Agricultural courses for adults.*—Students, unless they have followed a general course, must be twenty-one years of age. The course is short, consisting of from 6 to 12 lessons of two hours each. The instruction given is naturally more limited than in general courses. Courses for adults are intended partly for those who wish to study a special branch of agriculture. In 1927-1928 46 courses were held, attended by 1,044 students.

Intermediate Agricultural Schools

(a) *Winter schools* are State schools or, if they belong to private organisations, receive important State grants and do not differ much

from the State schools. The purpose of the winter schools is to give future cultivators of small and medium-sized holdings a not too expensive way of acquiring theoretical knowledge of agriculture and "continued general education". Instruction is adjusted to the demands of local agriculture. Pupils must be sixteen years of age, have practical experience of agriculture, and pass an entrance examination, which, however, is not demanded where more than an elementary education has previously been achieved. Some schools have, in view of the unsatisfactory general standard of the pupils, arranged preparatory classes. Courses last two winters; during the summer a few lessons are given, e.g. in May, in such subjects as botany, and excursions are arranged. Instruction is purely theoretical. General subjects such as mathematics and Dutch language are taught, sometimes general economics in addition to agricultural economics, and sometimes sociology. In all private schools some religious and moral instruction is given. The summer between the two winter terms must be passed in practical agricultural work; this apprenticeship time is under the control of the school. A final examination entitles the successful student to a diploma. One school has a 3-year course.

School fees are not high and are generally adapted to the financial means of pupils; remission of fees may be demanded in State schools.

Schools belonging to	1927-1928			
	Number of schools	Number of pupils		Number of pupils gaining diplomas
		1st class	2nd class	
Public authorities.....	13	302	243	220
Roman Catholic organisations..	8	156	112	112
Other Christian organisations...	2	41	26	25
	23	499	381	357

(b) *Intermediate Agricultural School at Groningen*.—This School is a State school and intended for students who, after some years' secondary or higher elementary general education, want to train themselves for farming, specially as holders of medium-sized and large holdings¹. Pupils must be fifteen years of age, have some practical knowledge of farming, and pass an entrance examination of a secondary school standard in mathematics, natural sciences, zoology, geography, and botany, further, in Dutch, German, English, French, and drawing. Instruction is entirely theoretical, teaching in general subjects being given for 12 to 16 hours weekly in the first year, subsequently for 6 to 7 hours only. The course lasts for three winter and two summer sessions; summer sessions, which include many excursions, last only three months; practical agricultural work is as far as possible done during the holidays. Pupils pay fees, but reduction or remission of fees can be obtained. The number of pupils averages about 40.

¹ The Netherland census of 1921 recorded only 250 farms with an area of more than 100 hectares.

Higher Agricultural Education

The High School of Agriculture at Wageningen is a State institution. Its purpose is to train for agricultural research and to prepare students for posts in administrative posts under the State or other bodies where scientific training is desirable. The lectures are open to all who care to pay the fees, but only those who hold a five years' secondary school certificate, have matriculated at a University or hold the diploma of the intermediate agricultural school at Groningen may sit for examination. However, students over twenty-five years of age can be admitted on proof of a satisfactory educational standard. Degrees may be taken in Dutch agriculture (with specialisation in general agriculture, stock-breeding, dairying, agricultural economics), tropical agriculture, Dutch forestry, tropical forestry and horticulture. Degrees are normally obtained after five years' study; specialisation takes place after the first eighteen months. Six months' specialised practical training must be undergone in the course of training, and if possible further practice must be obtained during the holidays; proof of practical experience is not demanded before entry.

In 1927-1928 the total number of students in their third, fourth, or fifth year following the course in Dutch agriculture was 48; the number of diplomas awarded in that year was 18.

Special Institutions

A State dairy school for training staff for dairy factory work exists; also a cheese-making school attended by farm workers who train for cheese-making on farms.

Special courses in various subjects are organised on the same lines as the lower-grade agricultural courses for adults. In 1927-1928 the number of courses and the number of students attending them was as follows :

Courses in	Number of courses	Number of students
Farm management	52	842
Animal husbandry	33	437
Horseshoeing	28	269
Pig-keeping	21	400
Apiculture	36	530
Poultry-keeping	65	1,038
Milking	192	2,433

The Dutch Moorlands Society, the purpose of which is to encourage the taking into cultivation of moors, etc., has organised training courses for its officials which can also be attended by private persons. It has two courses, an elementary course open to those over eighteen years of age who have been through the elementary school and have had practical experience in agriculture and forestry, and a higher course open to those who have had three years' secondary schooling and who preferably have also attended a winter agricultural school. The courses last two years; theoretical instruction is given during the winter and practical work is done during the rest of the year on lands owned by the Society or the State. In 1927-1928 16 students attended the lower and 21 students the higher course.

Agricultural Extension Education

Extension work depends on the work of State advisers; at present there are 22 advisers in general agriculture proper, 11 in stock-breeding, 2 in apiculture and 1 in poultry-keeping.

Advisers attend the meetings of agricultural organisations, give free advice and information and are available during fixed consultation hours. They supervise the lower-grade agricultural schools and inspect the demonstration fields, which are mostly organised in collaboration with agricultural organisations; they also give lectures. Some advisers are directors of winter schools and most of them collaborate in the instruction given in such schools and in agricultural training courses for elementary school teachers.

In 1927-1928 the number of lectures and the number of students attending the lectures given by them was as follows :

	Number of lectures	Number of students
In agriculture	330	16,849
In stock-breeding	198	10,460
In apiculture.....	38	1,703
In poultry-keeping.....	91	5,191

Reference may also be made to the Institute of Agricultural Machinery and Buildings attached to the High School of Agriculture. This Institute, in addition to research work, gives advice to farmers and agricultural organisations on the purchase and use of agricultural machinery and implements and the construction and re-arrangement of farm buildings.

Appendix : History of Agricultural Education

At the beginning of the nineteenth century courses in agricultural economics were given at Dutch Universities. In 1843 the first agricultural school for farmers was established on the basis of a State grant; during the following twenty years 20 to 30 students attended the winter courses and 13 to 20 the summer courses; then the numbers fell and in 1871 the school was closed. An Act of 1863 which regulated secondary education foresaw the establishment of a State Agricultural School; but this was not created until 1876 in Wageningen; in the meanwhile the Government had preferred to subsidise two-yearly agricultural courses at secondary schools. The first school of this kind functioned in Groningen from 1871 to 1874, and subsequently became the Groningen Intermediate School of Agriculture; from this school also originated the Agricultural High School, which was established in 1904 and received that title in 1917.

An Enquiry Commission appointed in 1886 to examine the position of Dutch agriculture by its criticisms of the ignorance and lack of training among the farming population at last gave a real impulse to agricultural education. The first agricultural winter school was founded in 1893; in 1897 there were six such schools and in 1913 nine attended by about 350 students; in 1914 the first private school of this type was started. From 1891 on, State grants for the organisation of lower-grade agricultural courses were given; by 1912-1913 the

number of winter courses was 405 and the attendance was 6,015. Special courses for women in agricultural subjects (not domestic subjects) were held to some extent about this time, but have since been discontinued, as butter and cheese-making, for which these courses specially prepared, has now been transferred to factories.

The system of State advisers dates from 1890; in 1913 the number of district agricultural advisers was 12; livestock advisers were appointed for the first time in 1919.

The latest feature in the development of Dutch agricultural education has been the giving of grants in 1921 to lower-grade agricultural schools by way of experiment. In the following years the number of these schools increased slowly; the opening of 10 new schools in the autumn of 1928 shows that this type of school is now definitely adopted.

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GERMANY

Agricultural vocational education, in common with all other education, is a matter for the individual States. The Constitution of the Reich only states "that school attendance is obligatory and completed by means of eight years of elementary education and continuation education up to the end of the eighteenth year of age"; this national programme is not yet fully carried out.

The history of vocational agricultural education has been nearly the same in all States, and organisation is very similar. There is a good deal of decentralisation even within the States, so that the small differences between one province and another within a State are often as noticeable as between one State and another. A general description applying to the whole country is possible under each sub-heading below, and is followed by a more detailed account of the institution in question at least in Prussia and where possible in some of the other States.

Authority and administration; organisation; extent of agricultural education.—There is little legislation, the necessary regulations being

issued by the competent Ministries. In the larger States organisation is left to provinces, districts and other local authorities; the chambers of agriculture are also largely responsible for agricultural education. Thus in *Prussia* the State authorities are by statute authorised to control the whole agricultural education system through the Minister for Agriculture, State Domains and Forests; since 1895 this Minister is in charge even of rural continuation classes; he collaborates with the Minister of Education in regulating some of the High Schools of Agriculture, while the Agricultural Institutes at the Universities come solely under that Minister. Higher agricultural schools belong to the State, and lower-grade schools mostly to the chambers of agriculture or local authorities.

The rural elementary school is not made the vehicle for vocational instruction. But rural continuation education, which is either uniformly compulsory or at least largely so throughout the country, has a distinct rural or even agricultural bias; some secondary schools giving agricultural instruction exist. Of vocational schools the lower-grade winter school with two-year courses is of great practical importance; in the south of Germany a lower-grade full-time school of another type is still rather frequent. Schools for adults, which must be classified as intermediate, have recently come into existence. Higher agricultural education is given either at the Universities or at High Schools of Agriculture.

Statistics allowing estimates to be made of the scope of agricultural education for the whole Reich do not exist; nevertheless, it may be stated that Germany belongs to the countries with the most widespread agricultural education system. Thus in *Prussia* about 250,000 boys out of those reaching the proper age each year are in attendance at rural continuation classes, while attendance at the two years' winter schools is about 18,500. Assuming that all the latter took up farming and that the occupational life is 30 years, about 35 per cent. of all the 763,000 farms over 5 hectares would thus be provided with a trained manager or occupier. Moreover, in this State 513 students attend the intermediate schools and 1,350 Agricultural Institutes at Universities or High Schools of Agriculture. In *Bavaria* about 4,500 boys out of those reaching the requisite age are in attendance at lower-grade schools; this would supply 26.0 per cent. of trained managers or occupiers for 254,000 farms of over 5 hectares.

Elementary education in rural districts; continuation education.—Vocational agricultural teaching is not, as a rule, given in the elementary school, but rural elementary schools take the needs of agriculture into consideration when teaching local geography, civics, or nature study.

Rural continuation classes exist nearly everywhere, but are not regulated in a uniform way throughout the country as are continuation classes in industry and handicrafts. The answer of the German Government to the Questionnaire of the International Labour Office states that it will probably not be disposed to make agriculture a special subject of instruction in such rural continuation teaching, the aim being to keep rural continuation education general. However, a distinct rural, or even vocational, bias prevails even at present; in one State attendance at an agricultural school proper is compulsory, while in another the local authority may create agricultural schools,

at which compulsory attendance is enforced, to replace rural continuation classes. Such an advanced stage is, however, only reached in the minor States.

In *Prussia* the present system of continuation classes is based on an Act of 31 July 1923, which entitles the districts (*Kreise*) to make attendance at continuation classes compulsory for all youths below eighteen years of age who have ceased to attend school; this Act has brought about considerable changes. Most of the classes have been taken over by the district authorities, and, although certain districts are still without any continuation classes, yet where they exist attendance is almost always compulsory in 95.4 per cent. of classes existing in 1927. State grants (but only about half the pre-war amounts) are given. Instruction is usually only given during the winter, sometimes only during four months, at the rate of 8 hours per week or about 120 per year. Tuition is free. Principles first laid down in 1910 insist that the conditions ruling on the typical local farm shall form the basis of the teaching; in view of the fact that most pupils come from small local farms, instruction centres round the actual operations carried out on these farms. In 1923 (before the passing of the Act) the number of classes for boys was 1,305 and of pupils 30,052, i.e. only one-third of the figures for 1913 (pre-war territory); in 1927 the number of classes had increased to 11,805 and of pupils to 246,330; in 1928 there were estimated to be 13,000 classes and 273,000 pupils. In 1927 the number of classes for girls was 885, and of pupils 21,420; in 1924 the number of girls' classes was only 31 and of pupils 881. In *Hessen* three years' continuation education, involving from 120 to 240 hours' instruction per year, are compulsory after the elementary school. Such instruction must have regard to local needs and in the countryside must stop during the harvest months. In *Bavaria* different curricula are drawn up for the continuation education (140 hours per year) of pupils engaged in agriculture and those engaged in industries; but these curricula can also be combined. In *Thuringia* either rural continuation courses or agricultural vocational schools must be established; attendance is obligatory for boys and girls who are principally engaged in agriculture or in an agricultural household, and does not cease before the end of the school year preceding the eighteenth year of age. The continuation courses (at least 120 hours' instruction during the winter or at least 4 hours weekly instruction except during spring and harvest work over the whole year) must stand in vivid relation to the pupils' occupations. On the demand of the statutory bodies representative of agricultural interests these courses may be replaced by an agricultural vocational school proper; instruction is given the whole year round except during spring and harvest work, and involves at least 240 hours' compulsory attendance (at least 720 hours over three years); teaching centres round the farmer's duties and comprises vocational agricultural science, agricultural arithmetic and book-keeping, economics, civics, and the German language. In *Bremen* an Act of 1910 obliges sons of persons farming over 5 hectares who have adopted agriculture as their occupation and persons training on farms of over 5 hectares to visit an agricultural school during two consecutive winter sessions between the ages of sixteen and eighteen.

Peasant High Schools, on the model of the Danish People's High School, are beginning to play a rôle in Germany.

Secondary Education.—A group of schools exists which, though sometimes mentioned among intermediate agricultural schools, now give so much general education that they ought rather to be looked on as secondary schools with a vocational bias. Historically they have been agricultural schools which have developed into general schools; agricultural schools proper are attached to some of them.

In *Prussia* the 16 schools of this type, known as Higher Agricultural Schools (12 belonging to urban authorities and 4 to chambers of agriculture) are regulated under a Decree of 1 April 1927. Their purpose is to combine sound theoretical vocational instruction and sound secondary general education. Seven years' previous attendance at an elementary school or attendance at the lower classes of a secondary school and an entrance examination (usually) are enforced. The course lasts four years; agricultural subjects proper are taught for 4, 6 and 8 hours in the higher classes out of a total 36 hours' of weekly instruction; one afternoon a week is spent in the experimental field or school garden. Fees are paid. The course ends with an examination admitting to a High School of Agriculture. The number of these schools and attendance at them (1,446 pupils in 1927, 375 obtaining certificates) have declined since the war. In States other than *Prussia* there were in 1926 only 5 schools of this kind. In *Bavaria* they belong to an older type, and give rather more vocational instruction.

Vocational Agricultural Education

Apprenticeship

Only the rudiments of an agricultural apprenticeship system exist. The German Society of Agriculture and the Chambers of Agriculture assist in finding farms suitable for apprentices, in drawing up rules for relations between employer and apprentice and in arranging examinations, but on a voluntary basis only. Between 1908 and 1917 only 290 apprentices presented themselves for the examinations of the Society. As a rule, both board and instruction are paid for, at least during the first year. The system, as now practised, is intended principally for future managers and officials on large estates; the number of apprentices returning to peasant farms is insignificant.

Lower-Grade Agricultural Schools

(a) "Agricultural Schools" are the most important type of lower-grade agricultural schools. These Agricultural Schools are constantly gaining ground and replacing other types. As a rule, they are winter schools with two successive sessions. Low tuition fees are paid. The slight differences in organisation in the different States will appear below.

In *Prussia* such schools are subsidised by the provinces under an Act of 8 July 1875, and also by important grants from the State; they are managed by, and are the property of, district authorities or more often chambers of agriculture; their purpose is always to offer such elements of theoretical instruction as are needed in peasant farming as that exists to-day. In some cases special mention is made of smallholders. In the Province of East *Prussia* it is stated that the

purpose is to enable sons of smallholders to learn how to farm small or medium-sized holdings on modern principles without making undue sacrifices of either money or time during their training, and to fit them to fulfil the statutory and other demands laid on them by the community. Or else the purpose is stated to be a continuation of the instruction given in the elementary school. Pupils must have attended the elementary school and be at least fifteen years of age (in Silesia sixteen); this means that they will usually have had some agricultural practice. Courses last two winters (5 to 5½ months each winter). Most schools have two classes; where there is only one half the pupils must start midway in the course. It is a complaint that many pupils do not attend during the second year; up to 1920 59 per cent. of all pupils defaulted in this way. In one province only are pupils required to pass the intervening summer in practical agricultural work. All schools give some general instruction. Tuition fees are very low. In 1913, when there were 239 schools in existence half the pupils were able to live at home; as there are now more schools (392 in 1928), probably more do so to-day. In 1913 there were 9,903 male pupils, in 1920 18,380. In Westphalia the number of pupils per thousand farms between 5 and 100 hectares is 57.9. Assuming the occupational life as lasting 30 years, if there were an attendance of 66.6 per 1,000 farms all farmers from these farms would in course of time be trained. The table below (for 1923-1925) shows in an interesting way a larger proportionate attendance from small farms in Western Germany, due to more intensive farming, the existence of more schools, and more understanding for education :

	Rhine Province	Hanover	Branden- burg	East Prussia
Farmers' sons per 100 students.	81	91.5	82.1	89
Farmers' sons per 100 coming from farms :				
of less than 10 ha.	35.4	20	13.3	9.6
from 10 to 25 ha.	42.4	44	33.7	26
from 25 to 50 ha.	18.5	26.6	39.8	36.1
from 50 to 100 ha.	2.9	8.4	12	21.7
more than 100 ha.	0.8	1	1.2	6.6

In *Bavaria* the purpose of the Agricultural School is defined on the same lines as in Prussia. Students must have had a satisfactory school training (elementary and continuation), be eighteen years of age and engaged in agriculture. There are two winter sessions each lasting 4½ months; teaching is adapted to local agricultural conditions. General education is given throughout, but less during the second session. The schools have boarding accommodation attached. In 1927 there were 88 and 5,058 students (3 women); the average age was twenty years. The second session was attended by five-sixths of those attending the first session.

In *Saxony* the Agricultural Schools were mostly winter schools up to 1921, when they all were taken over by the State Council of Agri-

culture and all the year round teaching for one year was introduced at the wish of the farmers themselves, who did not want their sons twice called off from the home farm; as teaching is now given during the summer, many more demonstrations and excursions can be arranged. Instruction comprises 37 hours per week, divided between general subjects, natural sciences, and vocational subjects. There are 28 schools, of which 25 have a two-term, 2 a three-term and 1 a four-term course. In 1927 there were 1,111 pupils (men).

In *Württemberg* there were 39 agricultural winter schools and 2,191 students in 1926-1927. In *Oldenburg* the schools are open to students over sixteen years of age who have had an elementary school education and have worked $1\frac{1}{2}$ years on a farm. Courses last for two winter terms of at least 20 weeks. In *Hessen* already in the first term 18 hours out of 27 are spent on vocational subjects and 9 on natural sciences. In *Bremen*, as stated above, attendance at an Agricultural School is obligatory; it is stated that the application of this rule has not met with difficulties. Courses last two winter sessions. A course for older farmers is arranged during the summer, to which the best students from the first winter session can be admitted.

(b) "Schools of husbandry" give all the year round instruction over a period of $1\frac{1}{2}$ or for 2 years. In the case of the schools giving the shorter course the summer session is not always well attended, so that the difference between these schools and the winter schools is not great; but the two-year course offers an adequate amount of practical instruction. On the whole, this type of school is now disappearing, but is still of some importance in South Germany.

In *Prussia* there are still 6 such schools belonging to different authorities; 4 were brought under uniform regulations of 13 March 1927. Students must have attended an elementary school or the lower classes of a secondary school, be sixteen years of age, and have had two years' agricultural practice; preference is given to those who have passed the apprenticeship examination of a Chamber of Agriculture. The schools aim at some general education, but principally at imparting such knowledge in science, economics, and agriculture as shall suffice for the carrying on of peasant farming. Vocational subjects become more important towards the close of the course. Tuition fees are paid. In 1927 363 pupils attended the 6 schools; in 1913 the same number had been in attendance at 12 schools; there is a further attendance of 222 pupils at 2 schools which approach in type the schools of husbandry. In *Bavaria* 4 schools of husbandry attended by 292 pupils existed in 1927, and gave both theoretical and practical training. In *Saxony* besides the Agricultural Schools holding longer sessions already mentioned, a State school exists having a two-year course, which at the same time serves as a training school for agricultural teachers. In *Württemberg*, where there are 4 schools attended by 109 pupils, this type of school is considered to have reached its highest development.

The total number of lower-grade agricultural schools in Germany is about 625, of which 380 are in Prussia, 80 in Bavaria, 35 in Württemberg, 25 in Saxony and also in Baden, 20 in Thuringia, and also in Oldenburg and in Hessen.

Intermediate Agricultural Schools

Certain agricultural vocational teaching has already been dealt with in the section on agricultural teaching in secondary schools; this leaves only one type of school to be considered under the heading of intermediate agricultural schools. These schools, are known as Higher Schools for Practical Farmers, also as Seminars for Farmers, and are in Prussia organised by the Chambers of Agriculture under regulations of 1 October 1920, amended 15 October 1924; they receive both State and provincial or district grants. The schools embody some new features; their purpose is to enable future managers of medium-sized or large farms (owners, tenants and especially estate officials) to acquire the necessary theoretical knowledge of agriculture in the shortest possible time. Students must be twenty years of age and have had at least 4 years' agricultural practice; practice on the father's farm is only taken into consideration if there has been sufficient guarantee of a solid practical training; students who have passed the apprenticeship examinations of the Chambers of Agriculture or of the German Society of Agriculture require only 3½ years' previous practice; students must further prove to be in possession of a general school education (lower secondary school or lower-grade agricultural school) which will enable them to follow the instruction. The number of students per school must not exceed 50. The course lasts one year (at least 42 weeks of instruction). Instruction is theoretical and purely vocational, and is given on the lecture and seminar system. A final examination entitles to a diploma. Tuition fees are paid. In 1913 there were 2 schools, and in 1928 10 schools attended by 513 students of whom 226 had previously visited a lower-grade agricultural school. The students' average age was 23.8 years. Similar schools have been established in Brunswick and Mecklenburg-Schwerin.

Higher Agricultural Education

The most advanced agricultural training can be obtained either at independent High Schools of Agriculture or at Agricultural Institutes attached to the Universities. The same sort of education is now given at either, and research into agricultural sciences is also carried on. Nearly all the Institutes have two special degrees, for stock and for seeds inspectors (advisers), and two general degrees, for practical farmers and for teachers at agricultural schools or public agricultural officials; the latter course seems to be the most attractive; in Prussia, for example, in 1928, only 10 per cent. of the students followed the general degree course for practical farmers. General courses for practical farmers last two years, general degree courses for teachers and officials, three years (to be spent at various Institutes if desired). For both these degrees two years' previous agricultural practice are required and the local Chamber of Agriculture must certify that the head of the farm on which the practice has been acquired is qualified to teach apprentices; where an apprenticeship examination is established in the district, this examination must have been passed. For the practical farmers' course a lower secondary school education is sufficient; for the teachers' and officials' course a complete secondary school education is demanded.

The following table shows the number of higher agricultural schools

and the number of students for degrees in general agriculture in 1928 throughout Germany.

Name	Number of institutes	Number of students
High Schools of Agriculture in Prussia	2	712
University institutes in Prussia	5	632
High School of Agriculture in Bavaria ¹	1	163
Technical High School at Munich ¹	1	165
High School of Agriculture in Württemberg	1	185
University institute in Saxony	1	173
" " Thuringia	1	67
" " Hessen	1	54
" " Hamburg	1	59
	14	2,210

¹ These two institutes are now amalgamated.

Special Institutions

(a) *Stock tending institutes*.—In *Prussia* apprenticeship examinations for stock tenders are regulated by the Ministry of Agriculture. Apprentices must be seventeen years of age, have received an elementary school education and have worked at least two years under a certificated stock foreman; the examination bears principally on practical work in the shed and on the field; certificates are given by the Chambers of Agriculture. Foremen's certificates are also awarded by the Chambers to persons twenty-five years of age, who have worked six years on stock (after 1 July 1930 they must possess the apprenticeship certificate), and who can show theoretical knowledge of stock-keeping and breeding. If a State-recognised stockmen's school exists in the district previous attendance at such a school is not demanded, but examinations are held there. There are five stockmen's schools in *Prussia* giving courses lasting as a rule a month. It is worth noting that the national German trade union of stock-tenders has always been very active in encouraging training. It was on the initiative of this union that a school for stockmen was established in *Saxony* in 1911.

(b) *Pig tending*.—Similar certificates can be obtained after two years' apprenticeship on a farm where pigs are either bred or fattened. A certificate as pig foreman is obtainable after 5 years' practice and after a visit to a two-month course at a State-recognised pig-breeding school and experimental station. In *Prussia* two such schools exist.

(c) *Poultry-keeping*.—Apprenticeship certificates are given to students who after attaining sixteen years of age have worked two years on a farm approved by a Chamber of Agriculture and who pass an examination. After another five years' practice and at the age of at least twenty-five the worker can enter for further examinations and obtain either a certificate as poultry-master given by a Chamber of Agriculture or as a poultry-breeding organiser; the latter certificate

requires one year's attendance at a State-recognised school for poultry-rearing, and is given by the Ministry of Agriculture. In *Prussia* only one school gives a year's course in poultry-keeping besides one month and two months' courses; the other six existing schools have only one-month courses; all schools belong to the Chambers of Agriculture and receive State grants.

(d) *Bee-keeping*.—In *Prussia* nine provincial apiculture institutes, which receive State grants, exist.

(e) *Schools for grass-land improvement*.—These schools rank with intermediate schools and train experts. Students must be seventeen years of age, have received a lower secondary school education or pass an entrance examination; two years' agricultural practice are demanded. The course lasts three years. In *Prussia* four such schools exist attended by 454 students. Outside *Prussia* training in this work is not given in special institutions, but, e.g., at the High Schools of Agriculture. In *Prussia*, apart from schools of pure horticulture, four horticultural schools having viticultural departments and giving a one-year theoretical and practical course, one agricultural and viticultural school, and two viticultural winter schools exist. In *Bavaria* viticulture is taught in three schools; in *Württemberg* in one school and in *Hessen* in one school.

(f) In *Saxony* a school for agricultural book-keeping exists.

Agricultural Extension Education

It is a characteristic of agricultural extension education in Germany that it is closely connected with the lower-grade agricultural schools; teachers in agricultural schools act as agricultural advisers for their districts. Thus, in *Prussia*, since 1 April 1929 the agricultural schools carry the title of "Agricultural School and Agricultural Advisory Service" (*Landwirtschaftsschule und Wirtschaftsberatungsstelle*); in *Bavaria* the advisory services are as a rule attached to the agricultural schools and the agricultural adviser acts as teacher in the school. The main activities of the advisers or teachers can be classified as follows:

(1) *The further education of old students*.—Old students very often form associations which arrange lectures, courses, excursions, etc., and receive the assistance of the teacher in the agricultural school in doing so.

(2) *Lectures and short courses*.—Lectures belong to the oldest form of agricultural advisory work, but are more and more being replaced by short practical theoretical courses which last one or several days and deal with special subjects. Statistics are only available from the year 1911; in that year in *Prussia* 1,324 courses were arranged, of which 293 lasted one day, 448 two days, 187 four to five days, and 396 more than five days; the attendance was nearly 35,000 persons. It is estimated that to-day the figures are at least five or six times as high.

(3) *Model farms*.—Model farms are now established throughout Germany. The advisory service chooses by preference farms of ex-students of agricultural schools or of farmers who are not too wealthy; the occupier undertakes to conduct his farm according to

the adviser's instructions. In *Prussia* there were 758 model farms in connection with agricultural schools in 1928, but the figure varies from 6 to 182 according to the province.

(4) *Experimental circles*.—Such circles were originally organised between large-scale farms. The expense was too high for the peasant farms, but when the experimental circle was attached to the agricultural school, the teacher could act as adviser for the circle in his leisure time, and it was found possible to create peasant farm experimental circles. In *Prussia* there were about 400 such circles towards the end of 1928.

In addition to the advisory work on general agriculture undertaken by the agricultural schools, there also exist a group of *advisers on special subjects*. These advisers are usually employed by Chambers of Agriculture, Agricultural Associations, but also by communal authorities or, in South Germany, by the States. The total number of estimated to be 600; the number of stock advisers alone is 250, of whom 130 operate in *Prussia*.

Among other extension work must be mentioned the travelling exhibitions arranged by the German Agricultural Society; this Society also arranges travelling facilities for farmers in Germany¹.

Appendix : History of Agricultural Education

During the eighteenth century agricultural economy was taught at the Universities as a part of political economy; lectures were not intended for farmers but for future civil servants, etc. The first real agricultural school was founded in 1806 at Möglin and was called an Academy of Agriculture. The example was soon followed in other places. These academies were always combined with large-scale farms and gave practical as well as theoretical instruction.

Some years later the first lower-grade agricultural school was established in *Württemberg* in 1818 and one attached to an Agricultural Academy in *Bavaria* in 1822; only in 1835 did *Prussia* create its first school of this kind—in 1865 it possessed twenty. Instruction at these schools was both theoretical and practical, and they were therefore given the name of "agricultural schools of theory and practice".

Both academies of agriculture and lower-grade agricultural schools nearly disappeared during the second half of the nineteenth century. In general circumstances favoured purely theoretical rather than mixed theoretical and practical instruction. The academies were replaced by Agricultural Institutes attached to the Universities; only three academies still exist and are now High Schools of Agriculture giving no practical instruction. The first Agricultural Institute at a University was established in 1826 at *Jena*, the next in 1863 at *Halle*.

The schools of theory and practice have also laid more and more

¹ The following statistics are available on agricultural extension education in *Bavaria* :

Agricultural Services.....	98
Lectures given by advisers.....	8,126
Special courses	1,154
Associations of former students.....	86
Membership of associations of former students	12,363
Excursions	1,143

stress on theoretical instruction. Some have given up practical teaching altogether, and have sometimes come to be replaced by agricultural winter schools which offer the advantages of not depriving the farmer of the labour of his sons during the summer; or they have laid more stress on general subjects and have become a kind of intermediate agricultural school, though, on the whole, with so little agricultural instruction that they can only be considered as general secondary schools with an agricultural bias. These schools were well frequented before the war, as they offered certain advantages as regards military service.

The first winter school was established in the 'sixties in Baden; they soon became the predominating school type. Continuation classes in the countryside were established at the same time; originally they aimed at giving vocational instruction, but this was soon given up. The so-called seminars for farmers are of quite recent date; the first school of this kind was established in 1911. The following table illustrates the progress of the lower-grade agricultural schools in Prussia during the forty years preceding the war:

Year	Full-time agricultural schools		Winter schools	
	Number	Pupils	Number	Pupils
1875-1876	26	583	12	164
1882-1883	33	696	38	885
1890-1891	27	1,061	61	2,235
1898-1899	26	964	103	4,102
1902-1903	19	1,032	119	4,753
1908-1909	17	1,011	184	7,273
1913-1914	12	543	239	9,903

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SWITZERLAND

Authority and administration; organisation; extent of agricultural education.—Legislation concerning school education is left to the Cantons. Elementary education alone is regulated by a certain number of principals laid down in the Federal Constitution, and binding on all the Cantons. Legislation concerning agricultural education is also left to the Cantons. The Confederation owns only the Federal Technical High School, which has a department for agriculture. It can, however, by means of subsidies, encourage the Cantons to create agricultural education institutions; the legal basis is in the Federal Act concerning the encouragement of agriculture of the year 1893, under which the Confederation gives regular annual subsidies to the Cantons for the purpose of creating or maintaining agricultural schools and courses. Federal subsidies are also given to the Cantons for rural continuation schools and for agricultural extension education.

The Cantons are free to legislate as they wish concerning vocational agricultural schools. These schools are generally attached to a farm or dairy or other experimental station; they are controlled by the Cantonal Departments of Agriculture or of Public Economy. A few schools have been instituted on the basis of endowments which cover a considerable part of the expenditure. The Cantons grant numerous scholarships to assist students to attend lower-grade and intermediate agricultural schools; the allocation of these is decided by the Cantonal General Council, and generally they are given only to citizens of the Cantons, while their amount depends on the financial position of the parents. Certain Cantons also give assistance to poorer students who wish to train as agricultural teachers at the High School; in the Cantons of Zurich and Vaud the condition is laid down that those who receive these scholarships must remain at the disposal of the Canton for a period of six or three years after the completion of their

studies if they are so required. Various Cantons also grant travelling scholarships. The Confederation itself grants scholarships to those who have completed a course in the agricultural department of the Technical High School, particularly for training as teachers of agriculture.

There is no agricultural teaching in elementary schools, but a certain amount of such teaching is to be included in the system of continuation education classes now being started. For purposes of further vocational instruction the youth of from sixteen to seventeen years of age, if he is to some extent practised in agriculture, can either enter one of the few Agricultural Schools or else one of the more numerous winter schools. This type of training usually lasts two years or two winters. Higher agricultural education is obtainable at the Technical High School at Zurich.

In 1926-1927 the total number of students attending a vocational agricultural institution was 1,950. Estimates show that from every 10,000 agricultural holdings there were the following numbers of students at Agricultural Schools and winter schools:

1886.....	9	1916.....	56
1896.....	16	1926.....	79
1906.....	33		

If the average occupational life be taken as 30 years, and allowing for the fact that the courses cover two winters, then from every 10,000 holdings 1,200 farmers will eventually be trained.

Elementary education in rural districts.—Attendance at an elementary school is compulsory and free throughout the Confederation. The number of compulsory school years is seven or eight (from the sixth to the fourteenth year of age), of which the first six years are generally full-time courses, with classes lasting the whole day. In definitely industrial areas elementary education is frequently extended to eight years, and certain Cantons even provide education for a ninth school year. The elementary school gives no vocational training.

Continuation education.—The institution of continuation schools is left to the Cantons. Such education is given between the fourteenth and twentieth year of age; in certain Cantons there are only so-called revision courses for preparing pupils for the recruits' examinations. Attendance is compulsory in certain Cantons, optional in others, and only boys attend. Often it is left to individual communes to decide whether continuation courses shall be held, and in that case the communes are entitled to decide whether they shall be compulsory for boys. The training often extends to a three-year course of from 60 to 200 hours. The purpose is to extend, and more especially to deepen, the knowledge gained in the elementary schools. These schools are not intended to give vocational training, but at the same time the course takes into account the needs of the scholars according to their occupational groups.

For some time past these continuation schools have more and more tended to introduce specialised agricultural training. The lead in this direction was given by the Canton of Solothurn, which, as far back as 1891, instituted the first agricultural continuation school. It was only in 1909 that this proceeding was legally recognised. The

relevant legislation definitely states that the vocational continuation school shall be merely one special type of the general continuation school. Communes are free to institute such schools as they like. The training consists of three winter courses of 120 hours each—that is to say, two half-days of three hours each per week for 20 weeks. Only half of the total number of hours is to be employed for specialised agricultural training; the other half must, as before, be devoted to general education. The extension of the federal subsidy to these agricultural continuation schools in 1919 has greatly encouraged the transformation of the general continuation schools into vocational schools. By 1926-1927 nine Cantons had such agricultural continuation schools, attended by 3,787 boys; of these, 2,342 attended schools in the Canton of Berne; no other Canton had more than 400 pupils attending such schools. The agricultural training in the continuation schools is intended chiefly to benefit farm servants, but also all those sons of peasants who are not in a position to attend an agricultural vocational school. They encourage the pupils to continue their education by studying agricultural journals and to attend further specialised courses and lectures.

Vocational Agricultural Education

Lower-Grade Agricultural Schools

Winter schools.—These form the favourite type of vocational agricultural school for the smallholder peasant population of Switzerland. They have become the vocational schools for the sons of peasants, who, after attending them, return to their father's holding. The training given, however, is chiefly theoretical. They belong to the Cantons, which decide on their organisation and control them. A few of the schools were erected by endowment. Certain Cantons possess several winter schools, and very few have none. The period of training is calculated for two winter courses lasting from four to six months. Attendance at the first course frequently implies attendance at the second. From figures drawn up in 1914 it can be seen that the number of students attending both courses has continued to increase; second courses were attended, out of every 100 students attending first courses, in 1890 by 63, in 1900 by 75, and in 1910 by 81 students.

The minimum entrance age is sixteen, or more often seventeen. The aim of these schools is to make the entrance age as high as possible. The scholars have to produce school certificates or pass an entrance examination to attest their elementary education. In one school the scholars are taken on trial for a period of four weeks. It is also stipulated by all the schools that the scholars should have had practical experience in agriculture, but as a rule no definite number of years of practical activity is laid down. For those who have not grown up in agricultural surroundings, certain schools have introduced practical courses lasting from April to October. Most of the schools provide a boarding house for the students. Instruction is free, but a charge is made for board. In the Canton of Aargau the cost of board follows a tariff according to the income of the parents, so that the sons of poorer peasants may be assisted.

The curriculum is very similar to that of the Agricultural Schools

(see below). In the first course the chief subjects of study are general and theoretical, such as chemistry, physics, etc., followed in the second course by training in specialised agricultural subjects. This latter instruction tends more and more to be adapted to the prevailing methods of cultivation in each district. The actual teaching is supplemented by discussions and demonstrations on the farm belonging to the school, and also by excursions, during which the scholars as far as possible become acquainted with industrial and administrative organisations. Those who have attended winter courses may often take part in summer excursions lasting for several days. Students in the second course are called upon to give lectures before all the teachers and their fellow students on subjects chosen by themselves. This is intended to give them experience in treating a subject independently. At the close of the course, an examination is held. With very few exceptions all the winter schools possess a large farm, serving as model farm, and generally also as the cantonal experimental station for dairy farming, viticulture, fruit farming, poultry rearing, agricultural machinery, etc. Practical students are often admitted to these farms. There is always a rush of students to these schools, and many applicants have to be refused admission. For this reason the Canton of Zurich has instituted branch schools. These, however, are generally merely the predecessors of independent institutions. A certain number of small district schools have also been set up, where the local authority can provide the necessary accommodation free of charge. By the Act of 1922 the minimum number of students was fixed at 20. Moreover, these schools must be provided with a library, a laboratory, and a collection of specimens, and the institution of boarding houses is to be encouraged. The small schools which are already in existence lack a farm and a boarding house, but this last point is very often said to be an advantage for them. Thus the report of the school in Wädenswil for 1926-1927 expressly states "that farmers are sending not only their sons, but also farm servants, to school", since they can help with the work on the farm before and after school hours.

There are 29 winter schools, together with one school of the same type specialised for mountain farming. In 1926-1927 the number of students was 1,711.

Intermediate Agricultural Schools

Agricultural Schools.—These also belong to the Cantons, which decide on their organisation and control them. Their purpose is to give students theoretical and practical vocational training, and to prepare them for attending the agricultural department in the Federal Technical High School at Zurich. They are therefore particularly attractive to those who have not grown up in an agricultural district but wish to devote themselves to agriculture. At the same time they are often attended by the sons of occupiers of larger peasant holdings or farms (intending farm managers). All these schools possess large farms.

The length of the courses varies. In three schools the course lasts for two years, in one for one and a half years, and in one for two and a half. Admission to a two years' school generally implies attendance over that period. The entrance age is fixed at sixteen in some cases, seventeen in others. Entrance is conditional on completion of two

years at a secondary school; three schools set an entrance examination, and in one school the pupils are only admitted on trial for the first four weeks; two schools demand a year of practical activity in agriculture before admission; a third provides practical courses, if necessary, from April to October. Pupils must live in the boarding house. No tuition fees are charged.

The training in these institutions is essentially vocational, but in the first year's course general education is not neglected. During the second year particular attention is paid to specialised subjects. The number of hours varies from 20 in summer to 35 in winter (per week). In addition all the pupils, either individually or in classes, are given practical instruction on the farm in all agricultural work. There are moreover frequent excursions, often even to other countries. Visitors are invited to give lectures on special agricultural subjects. The pupils also are made to give lectures on subjects chosen by themselves. They must also learn how to chair a meeting and keep minutes, so that they may be able to take part in the conduct of farming organisations later. Pupils receive a diploma on a final examination.

There are five intermediate agricultural schools. In 1926-1927 they were attended by 220 students.

Higher Agricultural Education

The *Agricultural High School* forms a department of the Federal Technical High School in Zurich, and is controlled by the Confederation. Among the other departments of the Technical High School which are of interest for agricultural students, mention must be made of those for Forestry, for Rural Engineering, and for Training Teachers of Natural Science. The general department for Optional Subjects is also important, particularly the Philosophy and Political Science section. The aim of this High School is to give higher and scientific vocational training; it is intended at the same time to be a centre for agricultural research. Students must have completed their eighteenth year in order to be admitted. The usual qualifications for entry to the Technical High School may be relaxed for students entering the Agricultural High School so as to admit those who have completed only three years' secondary education, but have attended two years in an agricultural intermediate school, and also had a year's practical work in agriculture; such candidates have to pass an extra qualifying examination in certain general subjects. Instruction covers six terms, and the theoretical lectures are supplemented from the beginning by practical courses. At the same time every student is obliged to attend one set of lectures in the Philosophy and Political Science section in order to complete his general education. The department also organises excursions at regular intervals. The final examination for the Diploma of Agricultural Science is held at the end of the sixth term. Among the conditions for admission to this examination, the candidate must produce proof of six months' continuous work during the summer on an agricultural holding.

Since the foundation of the Agricultural Department of the Technical High School (1871) up to the year 1924, the total number of students admitted to the Department has been 1,062; of these, 78 per cent. were Swiss and 22 per cent. foreigners. Attendance increased considerably during the war. In 1927 there were 112 students. Up to

1923 the number of students who obtained a Diploma was 479, and up to May 1925 the number of those who received a Doctor's Degree was 13. A great number of those who complete the course find a practical outlet for their knowledge as teachers in the Agricultural or Winter Schools. Others take up administrative work in the Department of Agriculture, or become officials at the cantonal or federal investigation and experimental stations. Many become heads of important co-operative federations or find employment as secretaries of peasant unions.

In July 1928 the University of Berne instituted a Chair for an extraordinary professor of Agricultural Science.

Special Institutions

The Canton of Vaud, by an Act of 1920, decided to institute an *agricultural technical school* situated in Lausanne. It is open only to those students who possess a diploma from an Agricultural or Winter School and wish to extend their training in a specialised subject. The training is divided into two parts, a theoretical part lasting for one winter term, and a practical part of from one to three months. Students are granted a diploma after examination; the holders of this diploma have preference in obtaining appointments as cattle or meat inspectors, secretaries of stock-breeding co-operative societies, tractor drivers, etc. From 1924 to 1926 there was an interruption in the courses. In 1926-1927, 19 students attended the special course in stock-breeding. Other special courses, however, are being planned, e.g. in agricultural machinery.

Agricultural Extension Education

(a) *Extension lectures and special courses.*—The agricultural schools and the affiliated experimental stations are more and more extending their activity in the direction of advisory work in agriculture. Teachers of agriculture are at the same time being more frequently requested by the Governments, the agricultural unions, and the co-operative societies to give single lectures and courses. Communes frequently support such courses by grants. The Confederation subsidises them and pays a fixed sum per lecture and per day of each course. The lectures are generally given in winter, but the courses may be spread over the whole year. They deal particularly with horticulture, fruit growing, stock-breeding, the study of soils and fertilisers, crop yield estimating, the co-operative system, and farm book-keeping. In the lectures rather more general subjects are dealt with, and they frequently explain topical questions of agricultural policy and economics. Statistics from the Canton of Zurich give the following figures from 1885 to 1923.

	Lectures	Courses
Number of lectures or courses.....	3,776	3,322
Number of students.....	246,025	77,698

(b) *Associations of agricultural students.*—The former students of agricultural schools generally form associations, which often institute so-called revision courses, and also organise lectures of a general nature for the country population, as well as excursions which may last for several days.

(c) *The Swiss Peasant Secretariat* in Brugg, which is subsidised by the Confederation, organises every spring a course of farm book-keeping. Members of the course, who come from all districts of the country, must keep exact accounts on their farms for a period of at least one year, and must send the figures to the Secretariat to be checked and correlated. The Secretariat also does extensive advisory work. It maintains a valuation bureau, which has already opened branches in certain districts and supplies information and plans for suitable agricultural buildings.

Appendix : History of Agricultural Education

Several public societies had made efforts, from the beginning of the eighteenth century, to encourage the vocational education of the farmer by lectures and pamphlets, but systematic school education was begun in 1799, in imitation of the work of Pestalozzi, in an institution for poor persons in Hofwil; by 1809 this school had developed into an agricultural school, which gained an international reputation; it possessed a large farm of 70 hectares. The institute disappeared in 1852. Another private agricultural school was founded in 1845, but also failed. A State agricultural school was instituted in the Canton of Thurgau as early as 1839; the entrance age for pupils was thirteen years, and consequently general education was one of the chief objects, but at the same time the scholars were given instruction in practical work on neighbouring State land. In 1851 increased vocational training was introduced for a period of two years, but the school came to an end in 1869. The same happened with other attempts in the Cantons of Vaud, Friburg and Aargau; all the schools closed after a longer or shorter period. The reasons were partly a lack of well-trained teachers, partly the backward nature of agricultural science at that time, and more especially the hostility of the peasants to theoretical vocational training.

Lasting success accompanied the foundation of the Strickhof (1853) and Rütli (1860) schools, and in 1870 the first winter courses for peasants' sons were held in the Canton of Vaud; later, in 1891, these courses were extended to a two-term winter school. The Strickhof and Rütli schools had also to overcome serious difficulties in their earlier years. Both possessed farms, which quickly became model farms, and agricultural experimental stations, and this meant a certain amount of support for the schools among the population. The number of pupils varied between 10 and 20.

The foundation of the agricultural department in the Federal Technical High School in 1869 proved a great stimulus to agricultural education. It was thus made possible to train competent agricultural teachers. The growth of agricultural science and the development of agricultural technique likewise made improved vocational training for farmers essential. There was already a certain amount of propaganda in favour of agricultural winter courses for giving the sons of small peasants the necessary vocational knowledge, but it was only after 1885 that the number of schools was increased, and the winter schools were established. In that year a Federal Decree came into force, in terms of which the Confederation granted subsidies to agricultural educational institutions. Very quickly 2 new Agricultural Schools

were set up, and 19 winter schools were started before 1914. During the same period 8 additional special schools were founded, one of which was later closed. During and after the war the system of agricultural vocational education made fresh progress, and in this period another Agricultural School and 12 new winter schools were started.

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AUSTRIA

Authority and administration; organisation; extent of agricultural education.—Legislation concerning elementary schools is a federal matter and these schools are subject to the Federal Ministry of Education. The continuation schools come under the legislation of the individual States. Legislation concerning agricultural education is in general left to the States; the sole existing intermediate agricultural school, however, is under the Federal Ministry of Agriculture and Forestry and is controlled by federal legislation; the High School of Agriculture is under the control of the Federal Ministry of Education. Moreover, since the Confederation gives financial assistance to agricultural educational institutions, to those founded by the States as well as to those founded by agricultural associations, the Federal Ministry takes certain measures to ensure uniform vocational instruction. Where private institutions exist or where schools have been founded by agricultural associations or chambers of agriculture, State grants are usually given.

Agricultural education is not given until the continuation school

is reached, or boys and girls can proceed directly from an elementary school to one of the lower-grade agricultural schools, which are either winter schools or one-year schools; there is only one intermediate agricultural school. Higher agricultural education is available at the High School of Agriculture and at two technical high schools. Agricultural extension education includes courses of several weeks' duration.

In 1927 the total attendance (men) at agricultural schools, special institutions, and forestry schools was 2,649, the number (men) leaving these schools being 1,396; this is out of an agricultural population which comprises about half a million farmers, only 6.1 per cent. of the arable area of whose farms belongs to owners of more than 100 hectares of land.

Elementary education in rural districts.—Throughout the country attendance at an elementary school is compulsory for all children from the age of six until the completion of their fourteenth year. No agricultural training is given in the elementary schools, but at the same time the teaching is intended to be adapted to the environment of the scholars. Some schools have school gardens and experimental fields. General nature knowledge is taught in the schools. In larger rural communes there are so-called lower secondary schools in which more advanced instruction in natural science is given. Even this, however, cannot be considered as vocational training.

Continuation education.—The continuation school system is left to the States; it is at present making great progress and is specially designed for those engaged in agriculture who are not in a position to attend a vocational agricultural school. The pupils attend the school either from their parents' house or from the place where they are employed. Up to the present Carinthia, Salzburg, Styria, Tyrol, and Vorarlberg have legislated for agricultural continuation schools. In 1920 attendance at agricultural continuation schools was made compulsory in Salzburg for all localities in which suitable teachers could be found and where the commune agreed to this step. The purpose of these schools is to give general education and preparatory vocational training to the youth of rural districts in continuation of the work of the elementary school. Training covers a three-year course of five winter months each year. In order to pave the way for the introduction of these schools, and as the result of the lack of suitable teachers, the compulsory clause was temporarily set aside in 1922. In Styria agricultural continuation schools were introduced by an Act of 1920; the creation of a school depends on the existence of suitable teachers. Attendance at these schools is open to boys and girls of from sixteen to twenty-five years of age. Classes are held in winter for one or two days per week and include "vocational agriculture". The training is supplemented by excursions and demonstrations. It is intended to make these schools permanent centres for popular education and at the same time centres for advisory agricultural work. The number of schools is increasing. The cost of the training (payment of the teachers) is borne by the States, but subsidies are granted by the Federal Government. No fees are paid by the pupils. The teaching in these continuation schools is done by elementary school teachers.

Vocational Agricultural Education

Lower-Grade Agricultural Schools

(a) *Winter schools*; (b) *full-time schools*.—Among the lower-grade agricultural schools are counted both the winter schools and the full-time (i.e. all the year round) Agricultural Schools. Both types are intended for boys who have completed their education at an elementary school. The winter schools are attended chiefly by those who have already had a certain experience of agricultural practice on their father's farm and wish to be trained in the cheapest possible way for the management of a peasant holding¹. The Agricultural Schools are attended both by the sons of peasants and farm managers who have grown up in an agricultural environment and by other youths who wish to devote themselves to agriculture. Their aim therefore is "to train the pupils to manage a peasant holding or small-holding independently and on scientific lines or to become capable managers of medium-sized or large holdings". The age for entrance is fourteen or in Styria sixteen².

The organisation of these schools differs considerably. Most of them, particularly the Agricultural Schools, have specialised in one particular direction; some give more emphasis to viticulture and fruit farming, others to crop production, and yet others to stock-breeding. The full-time courses last for one or two years. The winter schools, most of which have two courses lasting from five to six months each, also tend to specialise in those branches of agricultural work which are most important for their pupils. The size of the schools differs considerably; e.g. in Carinthia alone the number of pupils in the schools varies between 25 and 95. The Agricultural Schools give theoretical and practical training, and for this reason they, as well as the winter schools, have generally farms of various sizes attached to them on which as a rule one particular type of management is shown. But there also exist winter schools which give theoretical training only, in default of possessing a farm. Both in the Agricultural and in the winter schools the training in the first year deals with more general subjects and in the second year proceeds to specialised agricultural subjects, when the needs of the scholars are taken into consideration. Most of the schools provide a boarding house. In schools belonging to the States education is free, but a fee is charged for board. In 1927 the total number of schools receiving federal grants was 52, of which about two-thirds were winter schools.

Intermediate Agricultural Schools

There is only one intermediate Agricultural School, that at Mödling. Since it is attended by students from all States it was taken over by

¹ The schools in Salzburg and Carinthia are expressly stated also to be intended for the training of farm servants and in the uniform Regulations issued by Styria for its schools in 1924 the aim is expressly said to be that "the children of rural districts who do not possess land should be trained to intelligent co-operation in peasant agriculture and in particular to become conscientious and competent foremen, bailiffs, vineyard workers, etc."

² For the winter schools in Upper Austria the entrance age has been fixed at nineteen.

the Federal Government in 1926, after having been run as a private institution from 1869 to 1914 and as a State institution of Lower Austria from 1914 to 1926. This is definitely a vocational school and aims at giving young people a thorough training in agricultural subjects so that they may successfully manage agricultural holdings either as owners, tenants or officials, or may be capable of occupying positions as officials of agricultural co-operative societies, unions and organisations. Students of the School are also entitled to obtain positions as teachers in the lower-grade agricultural schools. The previous education required is attendance at the lower classes of a secondary school and one year of practical agricultural work; moreover, great emphasis is laid on practical agricultural work in the course of training. The school itself does not possess a farm, but only experimental and garden ground; however, practical training can be carried out on a large neighbouring farm so that the students can be shown all agricultural operations; students are also encouraged to undertake practical work on farms during their two months' summer holidays and during their Easter holidays. Students who cannot give proof of sufficient practical training are not admitted to the final examination. The length of the course is four years. Students between the ages of sixteen and twenty-two live in a boarding house.

Higher Agricultural Education

The *High School of Agriculture at Vienna* is an independent vocational school of the most advanced type. It is exclusively a federal institution. Its aim is "to give the most advanced training in agricultural science and to further agricultural science and all fundamental and accessory sciences in so far as they are related to agriculture". While before the war this institution considered it its main task to train managers for large farms and Crown estates, it now caters chiefly for peasant farming, since in present-day Austria smallholding prevails. In 1909 there were approximately 1,000 students, but since the war the numbers have fallen and in 1927-1928 there were 536, of whom 237 were in the agricultural department. The High School has three departments: agriculture, forestry, and rural engineering. The length of the course is four years. Admission is by examination only. The School is entitled to confer Academic Degrees¹. Special attention is paid to training in the basic sciences.

The technical high schools in Vienna and Graz have each a Chair of Agriculture.

Special Institutions

Several agricultural schools have, as already described, the character of special institutions. In addition the following may be mentioned.

(a) *Rural School of Home-Weaving at Imst in the Tyrol*.—This School was opened in 1925. It offers several courses each year, the aim being to encourage and maintain the home-weaving industry both for home production and for commercial purposes, as a winter occupation for both sexes in mountain districts. These courses are well attended.

¹ Students may also present themselves for a teachers' examination.

(b) *Farm cheese-making courses*.—These are given at each of the three winter schools in the Tyrol, and provide theoretical instruction for persons occupied in cheese-making.

(c) *School for Agricultural Co-operation; Dairy-School*.—Both of these are attached to a winter school maintained by the Chamber of Agriculture in Lower Austria.

Agricultural Extension Education

Itinerant lecturers are provided chiefly by the agricultural associations of the different States, and longer or shorter courses by the agricultural schools in the larger communes. The technical staff of the different States, and the staff of the agricultural schools collaborate in this work. In *Lower Austria* winter courses are organised by the Chamber of Agriculture in various districts; these courses last for four months and consist of 12 hours' teaching per week; 8 hours are devoted to elementary subjects and natural sciences and 4 hours to technical agricultural subjects. The number of these courses increased from 23 in 1923-1924 to 48 in 1926-1927. In addition, the Chamber of Agriculture holds courses of from one to five days on viticulture, cellaring, and farm book-keeping. The Dairy School provides special courses of six weeks, and at one domestic science school courses in domestic science and milking are given for the daughters of peasants. In *Upper Austria* the State Lands and Rural Engineering Council has instituted milkers' courses of three months in an agricultural school for rural workers and the sons and daughters of peasants. The number of students was 12. In *Tyrol* and *Vorarlberg* courses of ten weeks have been held for the training of communal inspectors.

An interesting experiment was made in 1927 and 1928. The Austrian Agricultural and Forestry Association combined with the Education Committee of the Austrian Union of Agricultural and Forestry Workers to hold six milkers' courses each of eight days. Selected workers, who were already practised milkers, were admitted and were shown the latest machinery and developments in dairy-herd work; a test was given at the end. The teachers were provided by the organisations concerned. The last course was attended by 11 students.

The total number of extension courses has risen from 99 in 1922 to 152 in 1927 and of persons attending them from 1,929 in 1922 to 4,477 in 1927.

In addition to these lectures and courses, the schools also undertake advisory work. Experimental stations are instituted in connection with several of the schools. Agricultural advisory work is also carried out by the federal experimental stations. The teachers of agriculture are also at the disposal of the Government for employment as judges at cattle shows and as expert advisers. They are, in addition, asked to collaborate at exhibitions.

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HUNGARY

Authority and administration; organisation.—Elementary schools and continuation classes, including special continuation classes in agriculture, and further general extension education (popular adult education) are under the Ministry of Culture and Public Education. All vocational and agricultural extension education is under the Ministry of Agriculture. New agricultural schools are established by Decree. Under a Decree of 23 June 1926 a National Council of Agricultural Education was established, which the Minister of Agriculture must consult on all important questions of agricultural education.

The rural elementary school curriculum has always included simple vocational instruction in agriculture; this instruction has lately been given from an earlier age combined with nature teaching. Vocational teaching in agriculture also forms part of the curriculum, in country districts, of continuation schools and of advanced elementary schools, both of which involve compulsory attendance. There are a few agricultural secondary schools. Lower-grade agricultural education is provided for in a certain number of vocational schools, but provision for intermediate agricultural education has only lately been arranged for in two establishments. Three agricultural academies provide higher agricultural education, while arrangements are made for extension lectures on agriculture, more especially on behalf of those who have acquired land under agrarian reform legislation.

Elementary education in rural districts.—Attendance at an elementary school is compulsory from the sixth to the twelfth year of age. Two lessons per week of agricultural instruction have been regular and obligatory in the fifth and sixth classes; new Regulations, applied since 1925-1926, now prescribe such instruction, together with nature teaching, from the third class onwards. The instruction contemplated is restricted to the fundamental principles of agricultural knowledge so as to give the children an idea of what the Earth is like and of what helps or harms the growing of plants; practical instruction takes place during the summer in the school field or school garden. In towns theoretical teaching necessarily predominates.

Continuation education; secondary education.—Attendance at continuation education classes is compulsory between the ages of twelve and fifteen. In rural districts special agricultural continuation classes are attached to elementary schools, or special independent advanced elementary schools are established, as a rule maintained by the communes; the aim is to extend knowledge of agriculture among the country population. Instruction lasts from eight to ten months during a period of three years and comprises seven to ten lessons

weekly in winter and at least four lessons weekly in summer. Fundamental principles of crop cultivation, animal husbandry, horticulture, and viticulture are taught, with some consideration of local conditions. In 1924-1925 there were 47 independent advanced elementary schools attended by 16,561 pupils and 959 agricultural continuation schools attended by 83,933 pupils.

Agricultural secondary schools exist in Budapest and four other towns. Sons of farmers are admitted in the first place. Courses last four years; the final examination counts as a matriculation examination to an Economic Faculty at a University.

Vocational Agricultural Education

Lower-Grade Agricultural Schools

(a) *Winter schools*.—This type of school was started after the war, on Danish and German models. Their aim is above all practical instruction calculated to raise local standards of practice in agriculture. Pupils must be seventeen years of age, and be able to read, write, and reckon. Courses last two winters; instruction includes lessons in arithmetic, writing, and book-keeping for smallholders. During the summer the staff visit pupils on their home farm and advise them on practical operations. Tuition is free; there are no arrangements for boarding. The earliest schools were established by private effort, but lately the Chambers of Agriculture have begun to establish schools. There are now nine schools, each attended by 30 to 40 pupils.

(b) *Farm schools*.—The purpose of these is to train cultivators of small and medium-sized holdings and the supervisory staff of large estates. Rules of admission are the same as for the winter schools, but for admission to the schools specially designed for training staff for large estates students must be twenty-one years of age. All schools have farms attached, but these are of very different sizes. Courses last two years and include arithmetic and Hungarian. Boarding houses are attached, and tuition fees are charged; poor students can obtain remittance of boarding and tuition fees in whole or in part. There are now nine schools attended by 270 students, a number more than double the number accommodated before the war in 20 schools; two of the schools train estate staff, and seven train owners or tenants of farms.

Intermediate Agricultural Schools

The gap between the schools just mentioned and higher vocational institutions has proved very marked. Two intermediate schools of agriculture have therefore recently been established.

Higher Agricultural Education

This is provided by three Academies of Agriculture, open to young men who have had a secondary school education; attendance at an Academy of Agriculture is equivalent to attendance at a University. The Academies have large farms attached, and instruction is both theoretical and practical and designed to train owners of large estates and the teaching staff of agricultural schools. Rooms for lodging a

certain number of students are provided, and poor students can obtain cheap meals or free meals. In 1913 the Academies were attended by 142 students, in 1925-1926 by 900; about half the students take up farming on their own properties, and about another 20 to 25 per cent. secure a position immediately on completing their course.

The Faculty of Economics at the University of Budapest provides a four-year diploma course for large estate holders and for persons who wish to occupy positions in the economic life and agricultural administration of Hungary.

Special Institutions

There are one poultry breeding school, four viticultural schools, a dairy institute and a school for dairy workers; the last two, which both have a one-year course, give instruction in the working up of milk as well as in all processes of milk production. The same is the case with the nine-months' advanced dairy course given at one of the Agricultural Academies.

Agricultural Extension Education

The State has encouraged agricultural extension education for over 25 years. The staff of all agricultural schools, of elementary training colleges, and of independent advanced elementary schools visit two or three days a week, and especially on Sundays and public holidays, the communes in their district and give lectures on the management of small and medium-sized holdings; they organise agricultural clubs and co-operative societies and arrange excursions to model farms and experiment stations. The centre of gravity of this work lies in the efforts made on behalf of cultivators who have received land under agrarian reform legislation. In 1922 1,071 lectures were arranged in 264 communes, in 1923 1,776 lectures in 528 communes; in the latter year these lectures were attended by 72,500 persons, of whom 42,270 were cultivators of small or medium-sized farms, 6,200 were agricultural workers, 200 were farm servants, 2,550 workers having agriculture as a subsidiary occupation. In 1925 212 communes arranged for extension teaching in the winter and spring to beneficiaries by the agrarian reform; of the 40,072 persons who had obtained land about 60 per cent. or 24,107 persons attended these lectures; the teaching staff visited 2,440 farms.

Knowledge of agricultural facts is also, or can be also, imparted in classes of general extension education (popular adult education), but such education is not designed to be really vocational in character.

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CZECHOSLOVAKIA

Authority and administration; organisation.—The State controls all agricultural schools. The agricultural high schools are administered by the Minister of Education, and all other agricultural schools by the Minister of Agriculture—in the case of the popular agricultural schools, however, in agreement with the Minister of Education, who naturally also controls the elementary schools. The State is entitled to take over provincial schools or schools hitherto financed by the provinces. New private schools can only be founded with the permission of the Minister of Agriculture and only in such places where no other agricultural schools exist. The Ministry exercises its powers of supervision by means of a staff of special inspectors. The Government is responsible for all expenses of the State schools and for a portion of the expenses of the provincial schools, normally for the salaries of their permanent ordinary teaching staff, as well as for certain grants made to these schools and also to the few existing private schools.

No rural bias is given to elementary education in rural districts, contrary to an old policy of the Austrian Government formerly prevailing in this part of Europe before the constitution of the Czechoslovak Republic. On the other hand, stress is laid on continuation education, which is compulsory where a continuation school exists, and on voluntary popular adult education; either of these forms of education are intended to form a bridge between elementary schooling and vocational training in agriculture. Opportunities for vocational training in agriculture are abundantly provided; the various types of school are adapted to the means of large-scale and small farmers, and a considerable number of scholarships are available; however, it is estimated that five-sixths of the children of the rural classes do not attend a vocational school. Three technical high schools provide higher education, and agricultural extension education includes interesting features, such as army courses, courses for the unemployed, the use of the radio and of rural libraries.

Elementary education in rural districts.—Attendance at an elementary school was made compulsory for eight years under an Act of 12 July 1922. Eight years' attendance had been enforced in Bohemia, Moravia, and Silesia under Austrian rule since 1869; in Slovakia six years' attendance only had been enforced under Hungarian rule; eight years' attendance first became enforceable in this province in the school year 1927-1928. An agricultural bias is not attempted in rural schools, as it is felt undesirable to lay stress on the importance of any particular occupation or social group.

The older history of elementary schools in rural districts, however, shows that as far back as 1774 the school reading-primers had extracts bearing on farm life. The school curricula for 1877 and 1885 instructed the teacher to show the children the usefulness and harmfulness to agriculture of important animals, plants, and minerals; much later that of 1915 lays stress on the children's knowledge of their surroundings, and states that the needs of agriculture must be taken into consideration in rural schools, that the pupils shall take part in garden work, that the needs of agriculture and commerce shall be taken into consideration in the first place when explaining elementary chemical processes;

it draws attention to the protection and destruction of animals, to the breeding of stock, to the growing of bread cereals, other food-stuffs or useful crops, to soil levels, etc. School gardens were dealt with by instructions issued in 1905, which recommended a botanical, a vegetable, a fruit tree, a special agricultural section, and an experimental field. Many experimental fields were used for other purposes during the war and have not been restored; in Bohemia only 20 per cent. of schools now have experimental fields. Opportunities for obtaining special agricultural knowledge have increased so greatly that they are hardly needed; more stress is laid on the ordinary school garden.

Continuation education.—Continuation classes existed in rural districts before the war, but the Czechoslovak State has created a new type of such classes. These aim not only at continuing the child's general education from the last grade of the elementary school onwards, but, as is stated in the Act of 20 January 1920 on popular agricultural schools, also attempt to prepare them for practical life by teaching them some of the elements of agricultural science and by giving them some preparation for attendance at a lower-grade agricultural school. A popular agricultural school is established voluntarily when there is a local demand for it, especially when such demand comes from professional agricultural interests; the local authorities are responsible for material and general expenses—the building of an elementary school is generally used—the State or province pays salaries. All boys and girls more than fourteen years of age living less than 6 kilometres from the school must attend, unless attending another agricultural school of higher grade or another vocational or a secondary school, or unless permanently occupied in a non-agricultural trade. Instruction lasts two years, for eight to nine hours per week distributed over two or more afternoons; on application of the school committee and the teachers, a third year can be arranged during which a particular branch of agriculture is taught with special regard to local conditions; instruction is theoretical in winter and practical in summer. Each school is provided with a suitable plot of at least 70 ares. Instruction, which is mostly given by the teachers of the elementary schools, is free; some schools are co-educational, and some for boys or girls only. At the date of the Revolution there were only 26 continuation schools; in 1926-1927 there were 740, holding 1,270 classes and attended by 35,207 boys and 19,640 girls.

Vocational Agricultural Education

Apprenticeship

There has hitherto not been any State regulation of agricultural apprenticeship; some of the agricultural schools give a practical training, but agricultural apprenticeship has not been generally introduced. Both individuals and organisations are trying to solve the problem. The system applied in Bohemia by the Czechoslovak section of the Agricultural Council is as follows. The Agricultural Council chooses, on the basis of replies received to special questionnaires and of practical experience, a certain number of model farms of different sizes between 10 and 100 hectares, which are under management of progressive farmers who have a family of their own and who

use different kinds of agricultural processes. They must keep farm accounts and, besides giving practical training to the apprentice, be able to explain the theoretical background of farming. The Agricultural Council supervises the relations between the farmer and the apprentice. The apprenticeship is finished by a practical examination on the model farm or on another farm which has similar conditions. Training lasts at least two years and must be supplemented by either a previous or simultaneous course in an agricultural school. This system has been in force since 1912.

Lower-Grade Agricultural Schools

(a) *Two-year winter schools*.—These schools, now called “vocational agricultural schools”, are the most important of the lower-grade agricultural schools, and are either State or provincial schools or subsidised by the provinces. Their purpose is to train independent occupiers of smallholdings and medium-sized holdings, more especially sons of farmers who are unable to send their sons to the more expensive two-year “practical” schools (see below, section c). The winter school has turned out to be the cheapest agricultural school, and nearly all new schools now belong to this type. Two six-month courses are held in two following winters from 1 November onwards; some courses have been experimentally extended to seven and a half months. Instruction includes both general and agricultural subjects. It is expected that when continuation education has become more general, it will be possible to replace some of the general subjects with more technical teaching and at the same time raise the age of admission to sixteen; at present the continuation classes to some extent compete with the winter schools; the farmer sometimes does not distinguish between the two types and “chooses the lesser of two evils”. Of the pupils attending in 1921, 12.8 per cent. came from farms of less than 5 hectares, 66.2 per cent. from farms of between 5 and 20 hectares, 19.0 from farms of between 20 and 100 hectares, and 5 out of 4,000 pupils in all came from farms of over 100 hectares; at present only about 1 per cent. are children of wage-paid agricultural workers. The State gives free instruction in the schools to 20 agricultural workers who are also sons of agricultural workers, and encourages the local authorities to reserve money in their budgets for two scholarships; if all districts followed this invitation, the total number of scholarships would amount to 500. In 1926-1927 there were 125 schools with 240 classes attended by 4,278 pupils, of whom 33 were girls; this means that each year about 2,100 students complete their theoretical agricultural training in this type of school.

(b) *One-year schools*.—In this type of school, which has recently been established, the course, which is closely similar to that of the two-year winter school but supplemented by practical instruction during the summer, lasts ten months. There are seven such schools, most of them in Slovakia, attended by 76 pupils.

(c) *Two-year schools*.—These schools, known as “practical agricultural schools” constitute the highest form of lower-grade agricultural school, and are either State or provincial schools or subsidised by the provinces. Their purpose is the same as that of the two-year winter schools, but they also give practical instruction. They are all provided

with medium-sized farms, and to facilitate practical instruction many are boarding schools. The course lasts two years, the school year running from 1 October to 1 August. As in the winter schools, the curriculum includes also general subjects, especially in the first term. It is intended to reorganise their curriculum on a more uniform basis, though not so as to abolish the practice of paying special attention to conditions prevailing in the district. At present this local emphasis is much observed in the teaching, the tendency to specialise being frequently expressed even in the names of the schools, which are known as agricultural and flax cultivation schools, or agricultural, fruit and vine cultivation schools, etc., although, in fact, their type is not different from that of the schools which call themselves agricultural schools only. In 1926 there were 30 agricultural practical schools with 60 classes attended by 891 pupils (2 girls). A greater percentage of pupils come from non-agricultural trades than in the winter schools; schools with practical instruction are more convenient for such pupils. Of the pupils attending in 1921, 8.5 per cent. came from farms of less than 5 hectares, 38.2 per cent. from farms of between 5 and 20 hectares, and 24.2 from farms of between 20 and 100 hectares; 10 out of 1,030 pupils in all came from farms of over 1,000 hectares; 64 pupils, or relatively considerably more than in the winter schools, were sons of agricultural wage-paid workers. This figure is in any case small and may be accidental; a larger proportion of children of wage-paid workers in these schools hardly appears likely as a permanent feature, as the pupils of practical schools are usually children of richer parents than those in the winter schools.

The rules of admittance to all lower-grade agricultural schools are the same. Pupils, both boys and girls, must be fourteen years of age and have passed the elementary school.

Intermediate Agricultural Schools

These schools offer the highest grade of agricultural education which is of practical importance to the farming population. Most of these schools belong to the provinces, a few to the State, and a few to private persons; they are specially fitted to cater for independent occupiers of big or medium-sized estates. Pupils (boys or girls) must be fifteen years of age, must either have passed the final examinations of the fourth class of a secondary school, or have successfully completed their career in a higher elementary school or have attended a two-year lower-grade agricultural school with distinction; an entrance examination in general subjects is also set. Preference is given to candidates who can prove that they have a chance to become independent farmers; as a rule, only 30 pupils can be admitted each year in each school. The course lasts four years and includes general subjects especially during the first years. Agricultural instruction is both theoretical and practical. Each school is provided with a large farm. The course finishes with a written and oral examination. One school is specialised for seed production, horticulture and fruit cultivation. Only a few schools are boarding schools. There are 15 schools, which in 1926-1927 held 56 classes attended by 1,329 pupils (48 girls). In 1921 only two-thirds of the pupils came from agricultural homes. Of 1,885 pupils 4.8 per cent. came from farms of less than 5 hectares, 27.0 per cent. from farms of between 5 and 20 hectares, 22.4 from

farms of between 20 and 100 hectares, 5.5 per cent. from farms of over 100 hectares; 52 were sons of agricultural wage-paid workers and 93 of agricultural salaried employees.

Tuition fees are payable in all agricultural schools; only in a few lower-grade agricultural schools is instruction free. However, many pupils obtain free instruction. Maintenance bursaries can also be obtained from funds provided by the Government, provinces, towns, communes, associations or private persons; nearly half these funds are provided by the Ministry of Agriculture, which in intermediate schools gives many bursaries covering the boarding fees.

Higher Agricultural Education

There are three agricultural high schools, one in Prague attached to the Technical High School, one in Brno, and one in Decm-Libverda attached to the German Technical High School in Prague; they are all State schools. The purpose of these schools is to train large estate owners and managers and the teaching staffs of agricultural schools. Candidates must have passed the final examination of a secondary school, or have attended an intermediate agricultural school and in addition show satisfactory knowledge of general subjects, or can be admitted, if eighteen years of age, as being persons possessed of the necessary knowledge and maturity; practical agricultural experience is not required. Students are generally between eighteen and nineteen years of age on entering. The course lasts four years and is mostly theoretical. Experimental and instructional farms are attached to the two Czechoslovak schools. There are two examinations, the second of which entitles to a Degree in Agriculture. In 1921 there were 1,206 men and 25 women students at the agricultural schools attached to the two high schools.

Special Institutions

The somewhat specialised character of the instruction in various lower-grade and intermediate agricultural schools has already been mentioned. There exist further a school for co-operation, which trains the staff of the agricultural co-operatives; further, two schools of agricultural engineering, a poultry school and two intermediate and ten lower-grade schools for gardening, fruit, and vine cultivation, which give either a general training in horticulture or a special training in vine or fruit cultivation or in vegetable growing.

Agricultural Extension Education

(a) *Adult courses.*—An Act of 7 February 1919 organises free courses for adults, to be established throughout the country. The purpose is to give civic instruction, i.e. to provide instruction about the State and all its activity; the Ministry of Education wishes to give the widest possible interpretation to this principle, and instruction therefore touches on agricultural as well as on other national problems. Instructions dated 14 November 1920 lay down that "such popular courses must attempt to give a real insight into the subject-matter and into economic life; the agricultural reading-primer should serve as a first stage in the vocational preparation of the adult population". An Order of the Ministry of Public Education of 21 October 1919

states that such rural education courses should "popularise general and vocational education". Courses are given from December to March, and are only subsidised by the State if they are attended by at least 20 persons. Use is made of the cinema by collaboration between the Ministry of Education and the Ministry of Agriculture, which possesses its own collection of films.

(b) *Courses for the unemployed*.—An Order of 10 November 1923 directs that of free courses for unemployed, one-third of the lectures shall be of general educational value, two-thirds vocational, and that such courses can also be organised for agricultural workers.

(c) *Agricultural radio*.—A committee set up by the Minister of Agriculture and composed of leaders of agricultural organisations and Members of Parliament supervises the use of the radio for agricultural education and information. Emissions amount to five and three-quarter hours per week. In the first ten months of this work, 5,500 weather bulletins, 2,700 agricultural communications, 1,200 prices bulletins, 1,150 special communications, and 170 lectures were given.

(d) *Country libraries*.—An Act of 22 July 1919 establishes a library in each commune; 20 per cent. of expenditure must be devoted to vocational and text books.

(e) *Army courses*.—All agricultural schools can organise army courses. The purpose is to teach the men, especially those coming from agricultural districts, the principal elements of agricultural science and to encourage them towards further vocational education. The Commanding Officer decides which men are to follow the courses, which are given either at the schools themselves or at another centre. The courses take place during the winter; at least 60 hours is devoted to theoretical instruction followed by at least 20 hours' practical exercises during the summer. Expenses (outside the school) and salaries are paid by the army authorities.

(f) *Short courses*.—These are organised at the agricultural schools as general courses, or as courses for the training of milk-recording staff, or on special subjects. In 1920-1921, 109 courses were given at agricultural schools attended by 4,152 persons; students were mostly older persons, already practising agriculture. More than half the courses are given at the winter schools; single lectures are also given. In the same period the teachers of the agricultural schools gave 2,474 lectures.

(g) *Travelling courses*.—Courses not exceeding eight weeks are organised in various branches of agriculture. The boards of agriculture in each province also organise travelling courses in domestic science, as well as lectures and field experiments. The boards have engaged agricultural advisers, who organise the extension work in their district and give advice to individual farmers.

Besides the organs mentioned, the following institutions also take part in extension work in agriculture: the Association of Agriculture in Czechoslovakia, which each year organises an agricultural exhibition, lectures and conferences; the Federation of Potato Growers; the district Associations of Animal Husbandry; the Associations of

Agricultural Youth; three establishments for free education for farmers with a month's instruction each winter; 13 people's high schools of farmers after the Danish model, with six weeks' courses; the two latter give mostly general education. The State gives grants for travelling instruction and for special courses, varying from 500 to 250,000 crowns per year to the agricultural boards. Other institutions receive small grants only from time to time.

Appendix : History of Agricultural Education

The history of agricultural education in Czechoslovakia offers several points of interest. It limits itself to the provinces of Bohemia and Moravia; before the war agricultural schools hardly existed in Slovakia or in the eastern parts of the present Czechoslovak Republic. The first beginnings of agricultural education date back as far as the eighteenth century. Since 1774 the reading books of the rural elementary schools have contained extracts on agricultural subjects; in the eighteenth century special courses in agriculture, arboriculture, and vine-cultivation were established. Under the influence of the Physiocratic movement, schools were created for the training of estate officials, the first in 1728. In 1790 the first real farmers' school was established; its instruction was entirely practical and consisted in showing how agricultural experience can be turned into practice. The time, however, was not ripe for such a school and it soon closed its doors; the schools for estate officials also disappeared. It was only after the abolition of serfdom in 1848 that the demand for agricultural schools for peasant farmers was felt; patriotic agricultural societies created two schools, which, as their purpose was definitely of a practical kind, were attached to model farms. The number proving insufficient quite a series of these schools were founded.

In the beginning of the nineteenth century agricultural education had been introduced in the "modern" high schools (i.e. secondary schools where classical languages are not taught). In 1853 the first intermediate agricultural schools were founded. About 1800 Chairs in Rural Economics had been created at the Universities, some of which were later transferred to the technical high schools of agriculture.

In 1864 the agricultural education system was reorganised in Bohemia, a distinction being made between the "practical" agricultural schools, the intermediate agricultural schools, the schools for agricultural industries, and the agricultural high schools. The practical schools were intended for peasant farmers and the lower estate officials; there were seven in Bohemia and seven in Moravia. The intermediate schools and the agricultural high schools were intended for large estate owners and managers as well as for future agricultural teachers; a real technical high school of agriculture did not exist. In 1856 a high school of agriculture had been founded at Teschen-Liebwerd and in 1866 another at Tabor. In 1895 these two schools were changed into agricultural academies with two-year courses, later three-year courses; the latter acquired a reputation abroad; the academy was half-way between a technical high school and an intermediate school. In 1884 the first winter schools were established, which provided a theoretical education at a relatively low cost to farmers' sons. In 1906

an Agricultural Institute was founded in Prague as a branch of the Czech Technical High School.

	1888	1918	1927
Technical high schools of agriculture	—	1	3
Agricultural academies	2	3	1
Intermediate schools	5	10	15
"Practical" schools	19	26	30
Winter schools	15	74	125

Since the constitution of the Czechoslovak Republic, great activity has been displayed in the building up of the agricultural education system. The Agricultural Academy at Tabor has been transformed into a Technical High School and moved to Brno, the Academy in Teschen-Liebwerd has been made into a branch of the German Technical High School. The course at the intermediate schools has been prolonged from three to four years. New agricultural courses have been established and the qualifications of the agricultural teachers raised; in future all teachers in agricultural schools must hold a Degree from a Technical High School of Agriculture.

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POLAND

Authority and administration; organisation.—Lower-grade and intermediate agricultural education is under the control of the Ministry of Agriculture and State Lands, as is also extension work; higher agricultural education is under that of the Ministry of Culture and Public Instruction.

Elementary education includes some simple teaching in nature study, but no vocational instruction. Continuation education only exists at present where sufficient elementary schools of the modern type cannot yet be provided. Lower-grade vocational schools, except for a certain number of private schools, date from after the war; they are to be established, separately for the two sexes, in each district in the course of the next twenty years. There are a certain number of intermediate agricultural schools and considerable facilities for higher

agricultural education. Local authorities and chambers of agriculture play a large part in creating and maintaining agricultural schools and carry on most of the extension education.

Elementary education in rural districts; continuation education.—The Polish Constitution now makes elementary education compulsory throughout Poland for all children between seven and fourteen years of age; before the war elementary education was general only in the provinces belonging to Prussia and Austria. Until such time as schools can be established for all children from seven to fourteen years of age, schools with four- or five-year courses are recognised; children leaving these are compelled to follow a continuation class up to the age of fourteen years, where their general education is continued. There is no other provision for continuation education.

The curriculum of the elementary school includes object lessons and notes on natural sciences. The pupils obtain a simple knowledge of animal and plant life, but the answer of the Polish Government stresses the fact that this teaching is in no sense vocational teaching.

Vocational Agricultural Education

Lower-Grade Agricultural Schools

These include lower-grade agricultural schools already in existence when the Polish Republic was founded, and schools created by an Act of 9 July 1920 concerning popular schools of agriculture; it is the type of school created under the Act which will form the bulk of these agricultural schools.

(a) *Eleven-month schools.*—The Act foresees, in the course of twenty years, the creation of two schools in each district, one for each sex, by the local authorities; temporarily districts may combine to establish schools. Chambers of agriculture may also be charged with this task, or the State itself can establish schools. The State assists local authorities or chambers of agriculture creating schools by the grant of a site, a fourth of the constructional costs of the building, and a long-term 3 per cent. loan for another 50 per cent. thereof. It pays teachers' salaries, and may also make such other grants as are necessary for upkeep. This type of school can also be established by individuals, associations or co-operative societies under authorisation from the Ministry of Agriculture, and schools so established may also receive State grants. The age of admittance for young men is sixteen. The course lasts 11 months; instruction is theoretical and practical. According to a model curriculum drawn up by the Ministry, theoretical instruction comprises 1,320 hours; part of this time is devoted to general education, but the greater part to lessons in crop-growing, care of live-stock, land surveying, book-keeping, agricultural law, and economics. Practical instruction is given on the school farm and garden four to five hours daily. The pupils write a weekly report on their practical work. The schools for girls, who are admitted at the age of sixteen years, are naturally partly domestic-training schools but not to the extent generally found in schools of this grade and type. The course in these schools also lasts 11 months. A model curriculum lays down 1,168 hours of theoretical and practical instruction, the

latter specially devoted to a knowledge of the care of small animals, the working up of milk products, gardening, dressmaking and weaving. Instruction is free. Pupils live in the school, but must pay for their board; poor pupils can obtain maintenance bursaries.

(b) *Schools with longer courses.*—There exist also some schools which spread their course over eighteen months, and a considerable number which spread it over two years, i.e. give two terms lasting the six winter months; it is assumed that pupils do practical agricultural work on the home farm during the intervening summer. All these winter schools are under the authority of the chambers of agriculture. There exist also some schools with a two- or three-year course.

There are two lower-grade schools which specialise in stock-breeding, one with a one-year course and one with five-month courses twice a year; two which specialise in horticulture, both with a one-year course; in addition, there exist horticultural, dairy and forestry schools proper.

In 1918 there existed only 28 lower-grade agricultural schools, all private. The present number of schools can be seen from the following table:

LOWER-GRADE AGRICULTURAL SCHOOLS, MARCH 1928

Length of course	State schools	Local or chamber of agriculture schools	Private schools	Total
<i>Schools for Boys</i>				
3 years	—	4	—	4
2 years	—	—	1	1
1½ years	1	5	2	8
1 year (11 months) ...	5	25	4	34
2 winters	—	22	—	22
5 months	—	—	2	2
Total...	6	56	9	71
<i>Schools for Girls</i>				
1 year (11 months)...	7	15	12	34
½ year	—	—	1	1
Itinerant	—	—	1	1
Total...	7	15	14	36

The number of pupils in each school is between 30 and 60. In 1927 the total number of pupils, including the specialised schools, was 4,781, namely 3,490 boys and 1,291 girls. As the courses in some of the boys' schools last more than one year, the number of pupils leaving each year and available for agricultural work is a little lower; in 1927 it was 2,712, namely 1,699 boys and 1,013 girls. Figures for some of the schools show that about 20 per cent. of the boys are sons of agricultural workers, the others sons of farmers; of the girls a higher percentage, about 30 per cent., seem to come from workers' homes. In nearly all cases sons and daughters return to the family farm after their training.

Intermediate Agricultural Schools

(a) *First-grade schools.*—These include one State stock-breeding school, five other State schools, and one private school; two schools have courses in forestry. The purpose of these schools is to give theoretical and practical training to those who will become farmers. Pupils are admitted between fourteen and eighteen years of age and must have had either seven years' elementary schooling or four years' secondary schooling. An entrance examination in Polish, mathematics and physics is set. The course lasts three years, and comprises both general and vocational education. At the conclusion of the course pupils undergo an examination and then engage in practical agriculture for at least a year, after which they sit for their final examination. The schools all have boarding schools attached. Pupils pay for board and instruction, but can obtain scholarships from the Ministry of Agriculture and Lands. In 1927-1928 there were 541 pupils attending such schools.

(b) *Advanced-grade schools.*—Only one school is a State school. Its purpose is to train agricultural teachers and advisers. Students must be seventeen years of age, must have had six years' secondary school education and at least one year's practice in agriculture. An entrance examination in Polish language, mathematics and physics is set. Instruction is purely vocational, and extends over five sessions. A supplementary course, or two such courses of six months, must be taken by students wishing to qualify themselves as agricultural chers or advisers. The school is a co-educational school. In 1927, 158 students took the final examination.

Higher Agricultural Education

Higher agricultural education is provided in five centres. The most important institution is the Central School for Rural Economics in Warsaw, with Faculties of Agriculture, Sylviculture, and Horticulture; the number of students in these Faculties in 1926-1927 was 303, 345, and 189, i.e. 837 in all (633 men and 204 women). A Faculty of Agriculture exists at the Universities of Cracow and of Vilno, providing respectively for 154 and 93 students in 1926-1927. Faculties of Agriculture and Forestry exist at the University of Poznan and at the Polytechnical School at Lwow, providing respectively for 334 and 350 students. The total numbers of students in agriculture, sylviculture, etc., at all Universities were 1,523 men and 333 women.

Agricultural Extension Education

Extension work is organised by chambers of agriculture as well as by various associations which receive State grants on account of this work. These associations and institutions are affiliated to various central bodies, of which two may be specially mentioned, namely, the Federation of Polish Agricultural Associations and the Polish Federation of Agricultural Societies and Clubs. Provincial agricultural societies are thus included, together with their district branches, which are again divided up into agricultural clubs. These societies maintain some of the agricultural schools; but they more particularly maintain some hundreds of agricultural advisers, principally itinerant, who organise and give seasonal courses, lectures, demonstrations, arrange visits to model farms, competitions, practical experiments, exhibitions, etc. A programme for these courses has been drawn up by the Ministry. This programme foreshadows two types of courses: (1) a short course of a few days to be arranged after the rush of spring work, and (2) a longer course in the winter. Seven varieties of each type of course have been drawn up, for agriculture, apiculture and gardening, stock-breeding and veterinary science, dairying and veterinary science, domestic science, economic and social conditions of agriculture, etc. It is a general rule that these courses shall not try to cover too much ground and that local conditions shall be taken into consideration. They may be arranged by agricultural societies, people's education unions, chambers of agriculture, and local authorities.

The Ministry of Agriculture encourages agricultural extension education by means of competitions, model farms, and by arranging farmers' excursions to districts where modern agricultural methods are being applied.

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Dr. Adam ROSE. *Le problème agraire en Pologne*. Warsaw, 1926. 57 pp.

H. HITIER. *Notes on Polish Agriculture*. Reprint from *Annales de l'Institut National Agronomique*. Warsaw, 1925. 92 pp.

LATVIA

Authority and administration; organisation; extent of agricultural education.—The Ministry of Education is in charge of the University and of some other institutions which give instruction in agricultural subjects. All other agricultural education institutions come under the control of the Ministry of Agriculture, which has a special section for education.

Regulations for agricultural schools were issued on 19 August 1926. They state that agricultural schools may be created and maintained by the Ministry of Agriculture; they may also be created and maintained, with its permission, by legal bodies or by individuals; in which case the State pays part of the salaries of the teachers, and may supply land and buildings. Special regulations are issued for each school, the idea being to allow the schools to adapt themselves to special

purposes and local conditions. There are 48 agricultural schools in all, of which 9 are State, 8 are district schools, and 31 belong to agricultural associations.

Each year 500-600 boys pass out of the agricultural schools proper, from an agricultural population which was cultivating 200,000 peasant farms and smallholdings (after the agrarian reform); in addition, there is University and extension education.

Elementary education in rural districts.—Attendance at an elementary school is compulsory over six years. The elementary school is preceded by a preparatory class, and supplemented by a complementary class. In the highest class of the rural elementary school courses of agriculture, horticulture, forestry, stock-breeding, and dairying are given.

Vocational Agricultural Education

Lower-Grade Agricultural Schools

Pupils must have completed the elementary school course. Instruction consists of two winter courses from 1 November to 1 May; pupils spend the intervening summer with their parents, and work on the home farm under the control of the school staff, who visit the farms regularly. In recent years there has been a tendency to keep pupils on the school farm during the summer. In 1926 there were 29 lower-grade agricultural schools, with 1,138 pupils, and in 1927 31 schools with 1,020 pupils.

Intermediate Agricultural Schools

Pupils must have completed the elementary school course or one in a lower-grade agricultural school. Courses in intermediate agricultural schools last four years, pupils remaining at the school throughout the year. Pupils who have completed their career in such a school, and who have afterwards worked for three years in agriculture, can obtain an expert's diploma in that agricultural subject in which they have practised during these three years and in which they have passed a special examination. In 1927 there were three intermediate agricultural schools, attended by 512 pupils.

Higher Agricultural Education

A Faculty of Agriculture exists at the University of Riga, and has both an agricultural and a forestry department. Students must have attended an intermediate agricultural school and must pass an entrance examination. In 1927 there were 480 men and 128 women students in the agricultural department. A University Degree is demanded for nearly all teaching positions in agricultural schools.

Special Institutions

There exist several special schools. The rules of admittance are the same as for lower-grade agricultural schools. These schools train technical staff for State service and for special work. Courses vary from one to two years, students remaining at the school throughout the year. In 1927 there were, of special schools, six dairy and stock-breeding schools attended by 228 pupils, one piscicultural school

attended by 37 pupils, and one apicultural school attended by 52 pupils; further, two horticultural and four domestic science schools. The State Technical Institute in Gulbene has an agricultural machinery department, and the Riga State Technical Institution trains surveyors and soil science specialists. Both these institutions come under the Ministry of Education.

Agricultural Extension Education

All agricultural extension work is organised by the agricultural societies, which for this purpose receive Government grants, and which, as already mentioned, play an important rôle in the agricultural education system. The largest agricultural association (*Latvijas Lauksaimniecības Centralbiedrības*) maintains an intermediate school, a domestic science school, and an evening course in Riga for the popularisation of agricultural science; it further employs three head agricultural advisers resident in Riga and 23 provincial advisers. In 1926-1927 this staff gave advice to 16,231 farmers, organised 46 courses and 390 lectures, and visited 1,300 farms. The association distributed 314,000 leaflets over the same period.

In 1927 the total number of courses arranged by agricultural societies was 684; the number of lectures and demonstrations was 2,605.

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ESTONIA

Authority and administration; organisation; extent of agricultural education.—Education in elementary schools is under the authority of the Minister of Education; vocational agricultural education is under that of the Minister of Agriculture.

Russian educational law is still in force. The Estonian Government states that it has not yet proceeded to draft fresh legislation because it is first desirous of examining what type of school is most appropriate to modern conditions. The type of school now in existence no longer corresponds to the Russian, but is becoming more closely assimilated to the Finnish and Swedish types, which seem more suited to Estonian conditions. Special institutions for agricultural education are principally created and in part maintained by the provincial authorities and by various societies, but receive grants.

Supplementary classes, which include a little agricultural teaching, are available in some cases in continuation of elementary education;

otherwise those wishing to study agriculture must wait until they can enter a lower-grade or intermediate vocational school at the age of sixteen; they are advised to have had some agricultural practice before entering, and this can be had at approved farms. Higher agricultural education can be obtained at the University of Tartu.

The number of persons training themselves for an agricultural career is annually about 300, of whom an unusually large number, namely 80, are women; this is out of an agricultural population cultivating about 127,000 holdings, of which 86,000 are over 10 hectares in area.

Elementary education in rural districts.—In the elementary schools no direct instruction in agriculture is given. On the other hand, the purpose of elementary education being to give the children a knowledge of what surrounds them, that knowledge in a country such as Estonia, which is mostly an agricultural country, is bound in a high degree to direct itself towards agriculture; thus an agricultural orientation is given in quite a natural way. Nearly all schools have a school garden and many of them have also beehives.

At a few elementary schools, actually ten in 1926, supplementary classes for one year following on the elementary school course, have been established which include agriculture in their curriculum. Boys and girls are taught together. Of the total number of hours only an average of 68 per year, or two per week, is devoted to agriculture. The number of children benefiting in 1926 was 172. It is hoped to increase the number of classes; the results are, in general, satisfactory, but the rural population is stated to show a certain reserve in regard to them.

Secondary education.—Five secondary schools are half-vocational in character and are known as agricultural or horticultural gymnasia.

Vocational Agricultural Education

Lower-Grade Agricultural Schools

(a) *Winter schools.*—Pupils are admitted who have attended four elementary school classes only; they are mostly between sixteen and eighteen years of age. The course consists of six months' theoretical, and six months' practical, instruction; the latter given outside the school. There are two schools, which in 1926-1927 were attended by 24 boys and 21 girls.

(b) *Two-year schools.*—Pupils must have attended six elementary school classes and are somewhat older than those attending the winter schools, but both in these schools and in the winter schools much time is devoted to general subjects with a view to improving the general educational standards of pupils. The course consists of two winters' theoretical, and two summers' practical, instruction, the latter given outside the school. There are six schools, which in 1926-1927 were attended by 272 male and 136 female students.

Intermediate Agricultural Schools

Nearly half the students have attended a lower secondary school, nearly one-third a higher elementary school, and about one-seventh a

lower-grade agricultural school; the students are mostly above twenty years of age. The course lasts three years. General subjects include Estonian, foreign languages and mathematics. In 1926-1927 there were two schools attended by 171 male and 11 female students.

All vocational agricultural schools are boarding schools. Most of the students are children of farmers, but a few children of agricultural wage-paid workers and of artisans attend the intermediate schools (and the special institutions; see below).

Higher Agricultural Education

The University of Tartu has a Faculty of Agriculture. In 1926 there were 450 students inclusive of students in forestry.

Special Institutions

There are four schools for animal husbandry and two schools for milk recorders; further, one dairy school, one forestry school, and other schools not falling within the scope of this Report.

Agricultural Extension Education

The teaching staff of the agricultural schools are active in experimental work. They arrange demonstration plots and exhibitions. Through the assistance which they give to their pupils on their home farms, they get into touch with parents and neighbours. Agricultural associations arrange short courses for working farmers. In 1925 the Central Farmers' Association arranged 839 courses which attracted 57,840 participants.

The State employs various agricultural experts. They assist the advisory staff of the agricultural organisations. The Central Farmers' Association employs 11 principal advisers and 47 advisers in crop production, horticulture, domestic science, co-operation, etc., besides 30 advisers in soil and building improvement. The most important organisation of the new settlers established under agrarian reform has 11 advisers in domestic science and 11 for building questions; the total number of advisers of this organisation is 35. Various co-operative organisations also do advisory work. All organisations receive important State grants.

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WESTERN AND SOUTHERN EUROPE

BELGIUM

Authority and administration; organisation; extent of agricultural education.—All technical agricultural education in Belgium is under the authority of the Second General Directorate of the Ministry of Agriculture. The Royal Order of 21 March 1919 established, in the Ministry of Agriculture, a Superior Council for the encouragement and improvement of agricultural and horticultural instruction. The Minister of Agriculture or his delegate is chairman of the Council, which is constituted of 12 members and a certain number of advisory members, among these representatives from the Ministries of Industry and Labour, of Justice, of Science and Art, and also those highest officials of the Ministry of Agriculture who are concerned with questions of agricultural and horticultural education.

Agricultural education is organised under an Act of 15 November 1919. This Act authorises the State to organise and administer two agricultural colleges, one teaching in French and one in Flemish; vocational schools of agriculture and related subjects (horticulture, arboriculture, etc.); elementary vocational schools of agriculture or special schools of local importance; and classes or lectures for the furtherance of agricultural education. The Act also directs that grants may be made to all schools, classes and courses dealing with agriculture and horticulture.

Some notions of agriculture are taught in the rural elementary schools, while some secondary schools have special courses in agriculture. Lower-grade vocational agricultural instruction is taught in agricultural continuation classes and later in winter schools; intermediate instruction is given in agricultural schools or in special departments at secondary schools. These forms of instruction are subsidised and controlled by the State. The State itself maintains only one intermediate and two higher agricultural schools. Higher agricultural courses can also be followed at the Catholic University of Louvain. State scholarships are available at the intermediate and higher agricultural schools.

In 1926 the total attendance at all types of agricultural schools was about 500 in the highest, 2,200 in the intermediate, and 11,700 in the elementary grade. The average length of courses is two years. Allowance must be made for the fact that many pupils attending winter schools have previously attended continuation classes. Taking these facts into consideration, we may estimate the number of the rural population who each year finish a theoretical agricultural training to be about 6,500. The total number of farmers (men) was 214,000 in 1920.

Elementary education in rural districts; secondary education.—In conformity with section 17 of the Act on elementary education of 20 September 1884, last amended on 14 August 1920, instruction in rural elementary schools comprises a knowledge of agriculture and horticulture. All country children in this way receive some formal instruction in these two subjects; of the 8,151 elementary schools

in Belgium, 6,359 give this instruction. The whole school period is eight years and is divided into four grades; a special local bias is given to the teaching in the last grade in order to prepare pupils for further vocational education; this fourth-grade bias is classified as industrial, commercial, rural, or agricultural in type. In rural schools the number of hours spent on agriculture and horticulture must be at least 40 in the two first grades, 80 in the third grade, and 120 for boys and 80 for girls in the fourth grade, when an agricultural bias is given in that grade. Each rural school must have a garden where the children can apply the theories they learn in class.

Special courses in agriculture are given in some secondary schools. These courses are organised, at the joint expense of the Department of Agriculture and the Department of Science and Art, in about 50 public secondary schools, and at the exclusive expense of the Department of Agriculture in about 50 private establishments. They consist of from one to two hours' teaching per week by an agricultural specialist or by an intermediate school teacher. The curriculum includes the study of plants, animals, and agricultural organisation. These courses are not intended to train farmers, but they are useful to young people, some of whom, after their intermediate studies, will return to the paternal farm, while others will go on to higher courses of study, become solicitors, barristers, etc., and establish themselves in the country where they will have many opportunities of taking an intelligent interest in the affairs of the rural community. With a view to saving expense the grant has of late years been reduced, the number of lessons which teachers are under an obligation to give being correspondingly brought down from 35 to 25 per year.

NUMBER OF COURSES

	1920-1921	1921-1922	1922-1923
State schools	1,388	1,397	1,465
Private schools	1,959	2,075	1,903
Together	3,347	3,472	3,368

Vocational Agricultural Education

Lower-Grade Agricultural Schools

(a) *Vocational continuation courses.*—These are organised under an Order of 5 June 1920 to teach young people the essential facts about agriculture : pupils must be not less than fourteen years of age and must have completed their elementary education. Courses are given three times a week and cover 100 hours per year. In addition to teaching in technical subjects pupils receive some general instruction, especially in arithmetic, drawing, essay-writing on agricultural subjects, etc. Courses are divided into two terms held either in the same year or during two succeeding winters; the latter practice is the most common; they finish with an examination. Instruction generally takes place in the evening in an elementary school building and is free. An experimental plot of at least 10 ares is supposed to be available, but its usefulness is limited owing to the fact that the

formal teaching is usually carried on in the winter; most of the practical work and exercises therefore have to be deferred until the summer.

In 1920-1921 30 courses had been established, attended by 1,130 pupils, but an extraordinary development took place during the next few years. In 1922-1923 455 centres registering 12,364 pupils, of whom 10,000 were present at the inspections, had been established; attendance was very regular and satisfactory. Pupils were generally between fifteen and twenty years of age, but farmers of all ages also attended the courses. In 1924-1925 the number of centres was 574 and in 1925-1926 483 registering 9,781 pupils.

(b) *Temporary schools of agriculture (also called winter schools).*—These schools are organised by the Ministry of Agriculture through the initiative of the State Advisory Officer and are generally subsidised by the provinces. They are established at agricultural centres, generally in rooms supplied by the communal authorities. The schools differ from vocational continuation courses in that the instruction is generally given by experts and demonstrations and practical exercises play a bigger rôle. They are specially intended for young men of seventeen or eighteen years of age.

Instruction is given during the winter months, on two to four half-days per week, from 1 November to 1 March, usually for about 100 hours, though courses with more hours, even up to 300, are also given. In fact, there is a general tendency to increase the number of hours' instruction in a course; in most cases the course is extended over two winters. Instruction is specially adapted to local needs and comprises studies on crops and animals, book-keeping, agricultural mechanics and electricity. However, it has often been felt that the preliminary education of the pupils attending these schools was not sufficient to allow them to follow with success the vocational instruction given, and it has therefore been necessary to include some general education in the course until such time as it can be assumed that the majority of the pupils have previously attended a vocational continuation course; this is already the case in about 50 per cent. of those attending. In 1926 the number of courses was 66 attended by 1,914 pupils; in these figures are included a restricted number of special courses in agricultural mechanics.

Intermediate Agricultural Schools

Intermediate instruction is given either in agricultural schools receiving State grants or in State-supported agricultural departments attached to general secondary schools. Such institutions are sometimes created by provincial authorities, though on the whole these authorities prefer to rely on aiding and encouraging private initiative. Both schools or departments are organised to train heads of agricultural undertakings of moderate size, directors of small agricultural industrial undertakings, farm bailiffs, etc.

(a) The purpose of the *departments* is to impart to pupils the elements of a systematic knowledge of agriculture. Pupils must have attended the first class of a secondary school or be twelve years of age and have had a sufficient elementary education. Instruction comprises a preparatory year with at least 4 hours' agricultural

teaching weekly and two ordinary years with 12 hours' agricultural teaching weekly in addition to the general instruction which is the principal objective. Certain agricultural subjects are classed as forming a minimum of agricultural knowledge; others are optional. Half the time is devoted to practical instruction in the form of excursions, demonstrations, exercises and applied drawing.

(b) The purpose of the *schools* is to give the pupils, besides a general education, specialised and complete agricultural instruction. Nearly all schools possess a model farm. The rules of admittance and the curricula are the same as for the departments, except that the optional subjects of the departments are obligatory in the schools; general education, otherwise than in the departments, is only a secondary objective.

Both in schools and departments a certificate is awarded on a final examination. Scholarships can be obtained. At present the number of schools is increasing and the number of departments decreasing. In 1926 there were 11 schools and 23 departments attended respectively by 700 and 1,447 pupils. At the schools most of the pupils are sons of farmers themselves intending to enter agriculture; this is not generally the case with the pupils in the departments. The schools also constitute educational centres for neighbouring farmers, who frequently visit them either individually or in groups. Several departments arrange agricultural winter schools.

(c) *The Intermediate Practical Agricultural State School at Huy* gives a somewhat more advanced training. Pupils must be at least fourteen years of age and pass an entrance examination. A preparatory year is established for pupils who are not in a position to begin on the regular course at once. Instruction is both practical and theoretical and lasts two years; it includes general subjects, natural science, agriculture, animal husbandry, and rural engineering. The school is provided with a well-equipped farm, the land necessary for cultivation and experiments as well as laboratories, collections and workshops. Pupils of Belgian nationality receive instruction free; foreign pupils pay 150 francs a year. Scholarships are granted to the pupils who distinguish themselves by their application, etc. A certificate of intermediate agricultural studies is granted on a final examination. Preparatory courses have not been held for some years; the total number of pupils has been from 25 to 28 in the first, and from 12 to 14 in the second, year of study; the number of diploma's pupils is about 10 per year; 95 per cent. of the pupils are sons of farmers.

Higher Agricultural Education

The most advanced agricultural education is given at the State Institutes of Agricultural Sciences at Gembloux (teaching in French) and at Ghent (teaching in Flemish) and at the Institute of Agricultural Sciences at the University of Louvain. Such education is intended for future owners or tenants of big estates, directors of enterprises working up agricultural products, State advisers of agriculture, professors of agriculture, etc. Students must have attained the age of sixteen years and hold a certificate of higher education, e.g. a certificate of a completed course in Ancient or Modern Humanities, a

certificate granted by the jury of preparatory examinations of 10 April 1890, a certificate of entrance to an institution of higher instruction; or if not in possession of such a certificate, must pass an examination in French or Flemish, one foreign language, history, geography and mathematics. No agricultural experience is demanded. Two agricultural courses can be taken, the first for the degree of licentiate in agricultural science and the second for the diploma of expert (*ingénieur*) in one or other of the branches of agriculture. The first lasts two, and the second four, years. The latter comprises two preparatory years and two years devoted to one of the following subjects: agricultural science, colonial agricultural science, forestry and hydraulics, horticulture, rural engineering and surveying, manufacture of agricultural products, agricultural chemistry. At the Institute at Louvain a third course, lasting three years and leading to a diploma as agricultural expert (which, however, has no legal status) can also be taken. The instruction given in these schools is primarily theoretical, though it also involves practical demonstrations and excursions. All three institutes have farms. Students pay tuition fees. Scholarships are given to poor students and to students who have passed the final examination for further studies at their Institute or abroad.

In 1925-1926 the total number of students was 514, as against 378 in 1914; in 1926 there were 216 students at Gembloux, 48 at Ghent, and 250 at Louvain. Before the war, the College of Gembloux was visited by many foreigners, especially by students from East European countries. In 1914 83 out of 157 students were foreigners, but the number of foreign students greatly declined after the war.

Special Institutions

Temporary schools or winter schools in agricultural mechanics are organised in the same way as winter schools in general agriculture. Both types of teaching have been welcomed with great interest by the agricultural population, but lack of teachers seems to have restricted the number of these courses.

Agricultural mechanics are also taught at three schools receiving State grants. These schools give all instruction necessary for the proper handling of agricultural machinery. The courses take place in the winter, chiefly from December to February; the practical part of the instruction and the excursions, however, are held in the summer. The curriculum comprises those branches of general science which are the basis of the practice of agricultural mechanics, general principles for working with materials, studies of machinery and upkeep. In 1925-1926 the number of pupils was 121.

The State also gives grants to *schools in bee-keeping*, where examinations are held on which certificates of assistant bee-keeper are awarded. Four schools exist, of which one is itinerant.

Agricultural Extension Education

(a) *Extension work of vocational agricultural schools.*—The schools mentioned above take an active part in agricultural extension work, both the agricultural schools and departments receiving State grants for this purpose. Schools must undertake at least one experiment

per year on a uniform plan and one at their own choice. Many members of the teaching staffs give lectures in their districts and are members of local agricultural societies. The teachers of the Intermediate State School at Huy give general lectures and discussions as part of the agricultural extension programme. The farms of the Institutes of Gembloux and Ghent furnish neighbouring farmers with useful information, and other demands can be made for the carrying out of experiments and demonstrations.

(b) *Agricultural advisers.*—Belgium possesses a State system of agricultural advisers. The Royal Order of 30 July 1911 reorganised the service of State advisers (*agronomes*) originally established by a Royal Order of 24 December 1898. There are 27 advisers and deputy advisers. Besides organising agricultural extension work in their district (see below), they carry out administrative duties, sending monthly and annual reports to the Ministry of Agriculture on all subjects of interest, and supervising the work done in schools where agriculture is taught. Once or more times each year all advisers are called to a meeting with the Ministry and every three months all advisers in each province meet, called together by the senior adviser, who also invites a delegate from the Ministry. These meetings secure collaboration between all persons concerned in agricultural extension work and enable programmes to be laid down.

Advisers take the initiative in establishing temporary agricultural courses, but their principal educational duties are to extend the knowledge of agriculture among the adult population. Their duties are to popularise information regarding the theory and practice of agriculture, particularly by means of oral or written advice, lectures and demonstration fields, to place themselves in touch with farmers, and furnish them gratuitously with any advice required; further, to instruct farmers in the advantages which they may derive from combination and to furnish persons desiring it with exact information in regard to the organisation and the working of agricultural associations; also to organise and direct the agricultural classes for adults established in their respective districts by the Department of Agriculture. Deputy advisers are specially engaged in giving technical instruction at the army courses and agricultural courses at general secondary schools. The principal work of the State agricultural advisory services may therefore be classified as follows :

(i) *Agricultural courses for adults* are specially to be organised in remote districts. They are public and gratuitous but must be attended by at least 20 persons regularly. Rewards in the form of books may be given to the three most qualified students who take a voluntary examination. Courses may be variously classified.

Courses in Agricultural Science.—The object of such a course is not to teach farmers practice already known to them, but to give them a notion of the scientific principles underlying agriculture which they ought to understand if they wish to farm on rational lines. Farmers are also taught how to fill in their annual statistical crop returns and are informed that figures given on these returns will not come into the hands of unauthorised departments or persons. These courses have for many years been given with great success, but there seems in some places to be a tendency to replace them by elementary

vocational schools of agriculture, which address themselves more to the younger population and give a more complete instruction.

	1923-1924	1924-1925	1925-1926
Number of lectures	1,068	1,059	1,353
Persons attending	27,722	35,585	47,355

Most of these courses, which comprise a restricted number of lectures, have been organised at the demand, and with the encouragement, of agricultural associations. In some provinces agricultural federations and commercial firms have recently combined to organise lectures at their own expense.

Courses in poultry-keeping.—Rules for establishing such a course are the same as for courses in agricultural science. They are very much appreciated, especially in the districts where poultry-keeping is most developed. Many farm women attend the courses and devote their free time to this occupation.

Courses in bee-keeping.—These are given on the same lines as the courses mentioned above. They are often very short (one or two lectures only) and are attended by farmers and other groups of the population making bee-keeping a supplementary occupation.

(ii) *Army courses.*—These are given at garrison centres. The courses take place in the winter months, December to May, two hours weekly after 6.0 p.m. At least 20 students must attend and not more than 22 theoretical lessons may be given. The curriculum drawn up for the courses in agricultural science are followed. Practical instruction is given in the form of Sunday excursions to farms and experimental fields, etc. The most intelligent pupils may receive prizes as an encouragement.

(iii) *Lectures and other instruction.*—Agricultural advisers must give at least 30 lectures in the year. In these lectures the attention of the farmer is drawn to all the educational institutions established or maintained by the State. These lectures are often attended by 100, and even up to 200, persons.

State advisers also give instruction in training colleges for elementary school teachers and in the temporary or winter schools of agriculture and agricultural mechanics and rural domestic science. The total number of lectures and lessons given by the advisers were :

Year	Lectures	Lessons
1924	970	1,608
1925	1,052	1,827
1926	830	1,338

(iv) *Consultations, etc.*—On weekdays advisers must be available for consultations at the most important local market. Consultations are also given on farms. Local newspapers advertise the hours of the consultations and the advisers also send them advice on questions of general interest to farmers, copies of articles in agricultural journals, etc. It is also the function advisers to assist the rural population in establishing agricultural societies.

(v) *Experiments and demonstration plots*.—The Ministry of Agriculture establishes each year a programme for experimental and demonstration plots and for alimentation experiments for stock to be carried out by agricultural advisers. Advisers themselves are called on to suggest further experiments and must always hold themselves at the disposal of farmers or agricultural associations wishing to organise experiments at their own expense. About 1,000 experiments are carried out each year, many by private initiative.

(vi) *Agricultural libraries*.—Finally, agricultural libraries are under the supervision of the agricultural advisers. The agricultural libraries are established by the Ministry of Agriculture and are divided into permanent and travelling libraries. Permanent libraries include : (1) libraries for farmers in general, (2) libraries for pupils in agricultural schools, and (3) libraries for farm women's clubs. Travelling libraries include : (1) libraries for farm women's clubs, and (2) for farmers only. At the end of 1923 there were 301 permanent libraries as against 154 in 1920, not including 23 libraries which existed at the agricultural schools themselves.

(c) *Field competitions*, i.e. competitions in the growing of crops, were arranged by the authorities for the first time in 1923. The first competition, in which 369 farmers participated, was a success and now all provinces arrange similar competitions, for which they receive state grants.

(d) *Work of agricultural societies : the "Boerenbond belge"*.—Agricultural organisations are very active in agricultural education work. They undertake propaganda on behalf of agricultural schools and give financial support to the continuation courses. The important organisation known as the "Boerenbond Belge" invariably stresses in its annual reports the close interest with which it follows the progress of agricultural education; in 1927-1928 in the provinces where this organisation is active, 90 per cent. of the continuation courses were organised with the assistance of sections of the "Boerenbond". The organisation itself organises many lectures, given partly by its own staff. Thus in 1927 it organised 5,103 lectures; however, not all these dealt with technical subjects. Each year the "Boerenbond" arranges a series of "study days" between Christmas and New Year. A first day is specially devoted to the interests of the younger agricultural population, the "study days" themselves lasting three days. Such "days" are usually attended by leaders of the local branches of the "Boerenbond"; three lectures are given each day on the special subject laid down. In 1927 700 youths and 300 adults attended these "study days".

Principal Sources

The answer of the Government of Belgium to the Questionnaire of the International Labour Office.

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FRANCE¹

Authority and administration; organisation; extent of agricultural education.—Elementary school education is under the authority of the Minister of Education, together with the still but little developed general continuation education system; special agricultural continuation classes as well as all other public agricultural schools come under the Minister of Agriculture. The whole system of agricultural schools dependent on the State is organised under the Act of 2 August 1918, with later amendments.

This system comprises agricultural continuation classes and agricultural winter schools, intermediate schools with full year courses and higher agricultural schools, including the Institute of Agricultural Sciences. Agriculture can also be studied at some of the Universities. The student can start his vocational training immediately on leaving the elementary school where he has already been taught some notions of agriculture. Facilities are offered to those who pass from lower-grade to higher-grade schools. A system of agricultural apprenticeship is developing. Agricultural extension work is partly connected with the agricultural schools, partly with a system of Departmental Services of Agriculture working under an Act of 21 August 1912.

Besides this official system of vocational education private initiative has created numerous opportunities for agricultural education. These opportunities are not so comprehensive as those provided by official action; there are no continuation classes and nothing corresponding to the Institute of Agricultural Sciences; moreover, training for practical agriculture is exclusively aimed at. But within its narrower limits this private educational system shows a great variety of school types—lower, intermediate and higher. The grouping of these private schools does not, however, correspond to that of the public schools, and for that reason the two systems must be discussed separately.

Private schools belong to various associations and foundations. Legislation on trade associations allows such associations to own and manage vocational schools, but the agricultural associations constituted under this legislation have made but little use of this right; most of the schools are only under the patronage of an agricultural trade association. Originally nearly all the schools belonged to religious congregations. Their reorganisation after the enactment of 1901 expelling the religious congregations, or their creation subsequent to that Act, has been usually the work of bodies or individuals acting on a religious basis.

Whether or not managed under the auspices of the local agricultural association, the private schools are mostly under the patronage of the Society of French Agriculturists. The Society of French Agriculturists has a special education department, which exercises a certain control over the schools by its power of awarding certificates

¹ Exclusive of the agricultural education system in Alsace-Lorraine, which has remained unchanged as created under the German Empire.

and other distinctions, and thus secures a certain uniformity and an adequate standard of instruction.

The total number of students in public agricultural schools is about 4,000 (to these may be added the number of pupils in continuation agricultural classes, at which the attendance in 1928 for boys and girls together was 15,000). The number of students in private schools is about 1,200. Seeing that the average length of a course is at least two years and that a certain number of pupils visit both lower-grade and higher-grade schools, not more than about 2,500 trained persons can be estimated to enter the agricultural industry each year.

Elementary education in rural districts: continuation and secondary education.—In elementary rural schools simple ideas about agriculture are imparted to the children by means of instruction both theoretical and practical. In 1923 the following theoretical programme was laid down. In the *elementary* course (ages seven to nine), the first lessons in agriculture and horticulture are to be given in the school garden; in the *middle* course (ages nine to eleven) instruction about principal crops, manures, field operations, and tools are to be given by means of object lessons and walks; in the *superior* course (ages eleven to thirteen) more systematic lessons are to be given on the cultivation of land (agriculture, horticulture and forestry), on fertilisers, the soil and its improvements, and on domestic animals. The teacher has to adapt this instruction to local conditions. The aim of the theoretical instruction is to make the children realise that there are scientific explanations behind agricultural processes, and that it is not enough to solve farming problems in an empiric way. Practical instruction is given in the school garden, which must be, at least in part, cultivated by the pupils under the direction of the teacher, and also by means of visits to farms and by walks; further, pupils are taught simple repairs of agricultural tools.

Pupils who have passed the final examination of an elementary school and who have attended the superior course for at least a year can continue their education in a so-called higher elementary school. These are independent schools having a two or three years' course. Vocational as well as general subjects are included in their curriculum, while at certain more fully equipped schools there is a possibility of creating special departments, either agricultural, industrial or commercial, which give three years' instruction. Unfortunately, the agricultural departments have never become important; it is stated that boys attending these schools greatly prefer to look forward to other occupations. Before the war only about 600, and in 1923-1924 656, boys followed these specialised agricultural courses, although the total number of boys in the vocational sections of such higher elementary schools is round about 38,000.

The purpose of giving agricultural instruction whether in ordinary or in higher elementary schools is summed up in the answer of the French Government to the International Labour Office Questionnaire not as an attempt to teach his craft to the farmer's child, but as the creation at the school of an atmosphere as favourable as possible for agriculture, so that the children should remain disposed to stay on the land as permanent rural citizens.

An interesting feature in the French vocational agricultural system

is the effort made by non-Government agencies, e.g. by agricultural societies, to encourage agricultural instruction in elementary schools. The Association of Agricultural Societies of the South East has since 1898 been specially active in this direction. This Association encourages teachers to give the boys lessons in agriculture and undertake excursions according to a systematised programme covering two years' study. At the end of the first year the pupils sit for an examination arranged by the Association, on which a certificate of elementary agricultural studies is awarded; boys over twelve years of age can sit for the second year's examination on which a diploma is given, while diploma pupils can obtain scholarships from the Association to cover part of their boarding expenses at a lower-grade agricultural school. The teachers receive teaching bonuses for this work. Similar examinations in rural domestic science are arranged for girls. From 1899 to 1912 the Association awarded to boys 9,262 certificates and 2,375 diplomas, between 1913 and 1921 2,863 certificates and 1,071 diplomas, and in 1926 250 certificates and 205 diplomas. The activity of the Union covers ten Departments. Other agricultural societies have followed the same policy, especially the societies of Finistère and Côtes-du-Nord, of South Brittany, of Ile-et-Vilaine, of the Manches, and of the Vendée. This work is carried on mostly at the private elementary schools; only in one Department do the public schools regularly present their pupils for these examinations.

Besides these efforts to encourage the teaching of agriculture in elementary schools, non-Government authorities also offer regular agricultural instruction at the elementary and secondary schools which they maintain by private effort. Thus several private higher elementary schools, which give vocational instruction in addition to a general education, have agricultural departments where an agricultural education is given covering two to three, even four, years, with opportunity for practical training. The Society of Agriculturists of France mentions six schools as belonging to the best among this type of school, the number of pupils varying from 30 to 100. Private lower-grade secondary schools or "colleges" also sometimes have special agricultural departments, especially in the Department of the Nord and the Pas de Calais, where this form of agricultural education first started and where 17 colleges offering agricultural instruction now exist. The same curriculum is followed in all these colleges. Other secondary schools in various parts of France have instituted similar agricultural instruction, often parallel to commercial and industrial courses. Their number, including some higher elementary schools, is estimated to be between 30 and 40. But some of these agricultural departments only exist in name, and even where teaching is really effective there are great differences between the various curricula. As one of the colleges giving the most complete agricultural education may be mentioned the School of Saint Joseph at Dijon. This school has three vocational departments following on after the elementary department. The course in the agricultural department lasts three years; about half the time is devoted to general instruction and sciences, the other half to agricultural subjects and practical work, the latter consisting in examination of fertilisers or seeds, in visits to farms, botanical excursions, etc.

*Vocational Agricultural Education**Apprenticeship*

An unusual form of continuation education is the regular apprenticeship system started since the war for agricultural wage-paid workers. Some of the earliest agricultural schools, the so-called "farm 'schools'", had aimed at giving practical agricultural instruction, but they have nearly all disappeared. Their place has been taken by the agricultural apprenticeship centres, organised under a Decree of 13 December 1919. A Decree of 26 February 1926 gave official support to agricultural organisations concerning themselves with apprenticeship. Yet another Decree of 12 August 1926 constituted a Central Committee for Agricultural Apprenticeship, which has to study the apprenticeship question and serve as liaison organ between the local committees; agricultural organisations have representation both on the Central Committee and on the local committees. The latest legislation is an Act of 18 January 1929, which extends the legal principles governing apprenticeship as laid down in the Labour Code, Title I, Book I, Chapter 1, to the apprenticeship contract in agriculture.

Centres for agricultural apprenticeship can be opened by chambers of agriculture, associations, or private persons; their purpose is to train children between twelve and fifteen years of age in the good execution of all agricultural operations. The centres are not to be regular educational institutes, but their purpose demands that improved cultivation methods should be in operation. The centres are under State control and mostly receive State grants.

The intention in creating apprenticeship centres was not only to improve the agricultural labour supply, but also to establish in an occupation the "wards of the nation" i.e. children of persons killed in the war (*pupilles de la nation*). Such children have a prior right to be admitted to the centres. Apprentices may either be twelve years of age and in possession of a certificate of elementary education, or be at least thirteen, but not more than fourteen, years of age. There are to be a sufficient number of apprentices at each centre to make it possible to carry out all necessary agricultural operations by their labour. Apprenticeship lasts two to three years. Apprenticeship centres are either agricultural, horticultural, viticultural, or centres of agricultural mechanics. Apprentices learn all the operations carried on at their centre and can qualify by examination for certificates as ploughmen, mechanics, stockmen, etc. As already said, no regular theoretical instruction is foreseen, but some instruction, which may be characterised as continuation instruction, is often given, e.g. apprentices may receive outside the summer months on an average one-and-a-half hours' daily instruction on subjects such as French, arithmetic, history, and geography, natural science, agricultural reading, citizenship, legal usages. A pamphlet issued by the Ministry of Agriculture advocates some vocational theoretical education as well, explaining the actual operations performed, and when possible even the attendance of pupils at an agricultural winter school. Apprentices pay for their board and receive no wages, but at some centres a savings account is established for each apprentice, of which he receives the proceeds on leaving. Most of the centres created are

agricultural, the number of these being in October 1927 19, affording 564 places for apprentices, of which 450 were filled. Hitherto the majority of these apprentices have been wards of the nation.

There exist a certain number of other institutions, some of which receive State grants, where orphan children can be apprenticed in agriculture. Many of these institutions belonged to the religious congregations and disappeared after the enactment of the Act of 1901 on these bodies. Subsequently certain private organisations tried to place children with agricultural families as apprentices. The authorities, however, are not in favour of this method; children thus apprenticed carry out only the most elementary operations and are not assured of any systematic training. The apprenticeship centres referred to above were preferred to this system.

Agricultural Schools

A. Public Schools

(i) *Continuation courses of a vocational nature.*—Under the Act of 1918 such courses can be organised on the initiative of the communal council. Their purpose is distinct from that of general continuation courses, as they are designed to train in agricultural knowledge only, and to be the natural complement to the apprenticeship; the apprentice knows how to carry out agricultural operations, but ignores the reasons for them. The courses are intended for boys from their thirteenth year (for girls corresponding rural domestic science courses are arranged). The Act prescribes that instruction shall continue during at least four years for at least 150 hours per year. As the course is so long the curriculum when completed may be counted as equivalent to that of a winter school (see below), but is simpler on account of the age of the pupils and their more limited practical experience.

The complete programme set up by the Ministry is very comprehensive. It presents the maximum of what may be taught to the children and is assumed to be divided over the four years. In choosing subjects of instruction the calendar of the agricultural year must be followed so that the teaching may fit into the year's work on the farm. Teaching is to consist of demonstrations with theoretical explanations, not of lessons *ex cathedra*. Pupils who have attended over the four years can get a certificate of agricultural studies. In practice it has been difficult to carry out a course of this length. Shorter courses lasting only some winter months are therefore often given. It is further stated that the majority of teachers who have been successful with these courses have been induced to give them both a general and a vocational character. The courses have mostly been handled by elementary school teachers. Farmers or agricultural experts on the register can be charged with additional courses, and it is also assumed that such persons, in collaboration with the teachers, shall organise demonstrations and experiments on their own farms.

Instruction is free. The national budget for 1924 included an appropriation sufficient to cover 1,000 continuation agricultural, or rural domestic science, courses, but only 700 were actually initiated; subsequently rather more courses have been established. In 1928 the number of boys and girls following these courses was 15,000.

(ii) *Lower-grade agricultural schools*.—Winter or “seasonal” schools are either stationary or itinerant; their purpose is to give vocational instruction during the dead season to sons of farmers who cannot spend two or three years in an agricultural school. The schools can be established on the demand of local authorities or of agricultural associations willing to guarantee 30 per cent. of the expenses. They are open to boys over fifteen years of age having some agricultural experience.

Stationary schools are always attached to a public school, either to a secondary school, to a higher elementary school, or to an agricultural practical school. All stationary schools have boarding accommodation. Pupils holding a certificate of elementary studies are received without entrance examination; competitive examinations in general subjects are, however, held when the number of candidates exceeds the number of available places and for the purpose of granting scholarships. The course lasts for not more than four months during two winters. The general curriculum is the same for all schools, but details vary according to the type of agriculture prevailing in the district. A maximum of 36 hours’ instruction per week is given. Instruction comprises French, agricultural geography, physics, natural sciences, and also some manual work. The instruction in the general subjects is mostly given by the teaching staff of the school to which the winter school is attached, the agricultural teaching proper by members of the agricultural extension staff, of whom one is resident at the school. Pupils are either fully or half-boarded or day pupils. Boarding fees are paid, but instruction is free. School funds permit the giving of a certain number of scholarships, and in many cases local authorities donate further scholarships.

Itinerant schools are intended for those not able even to find the time to follow the course of a stationary school. They are established at the most important agricultural centres of a Department, for one year at each centre. Pupils are received without examination. Lessons are given mostly once, but also twice, a week, usually on Thursday or Sunday afternoons from November to March. Instruction comprises more particularly general agriculture, animal husbandry and animal hygiene; no manual practice is given. Instruction is naturally very elementary, much more than that of a stationary school; it can only be considered to be more advanced than that of the continuation agricultural courses because of the higher age of the students. Instruction is free and a diploma is awarded.

In 1926 the number of winter schools was 81, attended by 1,850 students. Of these about 45 were stationary and about 36 itinerant schools. The number of pupils varied from 10 to 40.

(iii) *Intermediate agricultural schools*.—Intermediate agricultural education is given in the Agricultural Schools. This title was introduced by the Act of 1918 to comprise the schools hitherto known as farm schools, practical schools, and technical schools; the last-named are designated according to the specialised branch of agriculture with which they deal and are discussed under *Special Institutions*. The farm school has nearly disappeared. The practical schools have, by Decree of 3 July 1926, been divided into two groups—ordinary practical schools and district schools.

(a) and (b) *Practical and district schools*.—These schools can be established either on State land or on land put at the disposal of the State for a period of at least thirty years by local authorities, associations or others interested. To each school can be attached one or several special schools, an agricultural winter or seasonal school, an agricultural domestic science school or milking school for girls. Practical schools are intended for boys who after their elementary school education desire to have some vocational agricultural education more comprehensive than that given by a continuation school, more especially for sons of farmers and tenants. Pupils must be fourteen years of age; a few schools accept them at thirteen years of age. Pupils have to pass an entrance examination or must be provided with a certificate of elementary studies, but an examination is held where there is pressure for admission and for the awarding of scholarships. The course lasts two, two-and-a-half, or three years. The curriculum is fixed separately for each school in order to permit adaptation to the type of agriculture prevailing in the locality. Thus some of the schools are horticultural and agricultural schools, while some are agricultural and viticultural. All the schools have farms attached. Half the instruction is theoretical and half practical. Theoretical instruction comprises general education applied to agriculture, namely, French, mathematics, natural and physical sciences. Practical instruction comprises the application of the theories taught; pupils carry out all types of operations on the school farm, undertake excursions to well-run farms, to agricultural shows, etc. The course closes with an examination on which a diploma is awarded. Boarders pay boarding but no tuition fees; day students pay a low tuition fee. The school funds permit the offer of a large number of scholarships, and these are supplemented by others given by local authorities, etc.

In 1928 there were 36 practical schools, of which 8 had three-year courses, 4 had two-and-a-half-year courses, 23 had two-year courses, and a single school a one-year course. Of the students 70 per cent. are estimated to become farmers.

The title of district agricultural school is, by Decree of 3 July 1926, given to practical schools which are so organised that they can constitute centres of agricultural education for several Departments. Students must pass an entrance examination, which, otherwise than in the ordinary practical schools, comprises obligatory mathematics and natural sciences. Besides giving the instructions of an ordinary practical school, the district schools give a complementary education which lasts a year and which lies between that of a practical and of a higher National School of Agriculture (see below under *Higher Agricultural Institutions*). There are four district agricultural schools.

(c) *Farm schools*.—This type of school, as already stated, is now disappearing. In 1928 there remained only one of these schools with a three-year course. Most of them have been changed into practical schools, or their place has to some extent been taken by the apprenticeship centres dealt with above. Their purpose was to train agricultural workers and foremen. Pupils are admitted at sixteen years of age.

The total number of intermediate schools (farm schools, and special institutions included) in 1926 was 48, attended by 1,761 students.

(d) *Agricultural School at Cibeins.*—With the group of intermediate public agricultural schools must also be reckoned the Agricultural School at Cibeins, near Mizerieux (Ain). This School, which was founded by the town of Lyons in 1918, and recognised by the State in 1926, has an area of 215 hectares and is well equipped. The purpose of the school is more specially to receive young Lyonnais wanting to take up practical farming, and preference is given to pupils born in the Rhone Department. Entrance takes place only on competitive examination, which is held each year in Lyons. Pupils, who must have certificates of previous studies, enter between the ages of twelve and fourteen; those who are fourteen and prove to have the knowledge equivalent to that of the pupils of the second class of the school can pass directly into the third class. The course, which lasts five years, is divided into two years of instruction corresponding to that in the higher elementary schools, though with a more pronounced agricultural bias, and into three years of instruction corresponding to that given in a practical school recognised by the State. Pupils obtain the same advantages as those afforded in a State school. The number of pupils in each class is about 50. Most of the pupils are boarded. The school has its own system of scholarships; moreover, an agricultural credit fund is attached to the school, which gives ex-pupils loans at reduced rates to enable them to buy either a little land or live-stock.

(iv) *Higher agricultural institutions.*—The most advanced agricultural education is given in the Institute of Agricultural Sciences and in the three national agricultural schools; also at certain Universities, but the latter instruction is not governed by the Act of 1918. The instruction at the Institute ranks a little higher than that at the national schools, which give a more practical training.

(a) *The three national schools.*—The Act of 1918 mentions three State schools as national schools, namely, those at Grignon, Montpellier and Rennes. These schools train farmers for the management of large estates either as owners and tenants or as managers, also teachers for the agricultural schools and agricultural extension work, staff for the public agricultural services, directors of factories for the working up of agricultural produce, managers of agricultural associations and co-operatives, etc. Students over seventeen years of age are admitted after a written and oral examination; the standard demanded corresponds to that of the mathematical classes of secondary schools; students from the Agricultural Schools are credited with an extra percentage on the marks they actually obtain. No agricultural experience is demanded. The course lasts two years and is both theoretical and practical. The practical exercises are given nearly every day and the students manage the farm attached to the school. The school at Grignon trains more especially for large estate work; the instruction in rural engineering, hydraulic engineering, and agricultural machinery is mentioned as very advanced. The school at Montpellier specialises in vine culture, while the school at Rennes specialises in the typical agriculture of the West of France, e.g. in dairy-farming, cider-apple production, etc. A diploma giving the title of "agricultural expert" (*ingénieur agricole*) is awarded in all three schools. The schools at Grignon and Montpellier have boarding accommodation for some of the students; the school at Rennes has no

such accommodation, but a co-operative society exists to provide cheap living. Tuition fees are paid. Each school disposes of over 15,000 francs from State sources for scholarships, and there are scholarships from other sources.

The number of students attending these three schools is not stated separately for each school. In 1926 it was between 150 and 200 for the three schools together, or, including the National Horticultural School and the National School of Agricultural Industries, 292. In any case, numbers have remained rather stable for many years past. Of the students only 10 per cent. seem to follow professions other than the agricultural, but only 50 per cent. of the students of Grignon and 60 per cent. of those in the other two schools become practical farmers.

(b) *The Institute of Agricultural Sciences.*—The Institute of Agricultural Sciences in Paris is the Agricultural High School of France. Its purpose, like that of the three national schools, is to train for practical large estate work, for teaching, and for the public agricultural services, but the instruction given is more advanced than in these three schools, and the entrance conditions are more severe. Students (women have been admitted since 1917) must be seventeen years of age and pass a difficult written and oral examination. Students from the national schools and from the National Veterinary School are credited with an extra percentage on the marks they actually obtain. No agricultural experience is demanded. The course lasts two years. The School possesses a farm of 281 hectares outside Paris, where each student obtains practical instruction once a week; further, in the course of his two years' study each has to spend a training period on a farm where he has to make up a labour diary and a detailed description of operations. Nevertheless, less practical training is given than at the three national schools. Tuition fees are paid; scholarships are awarded, the financial position of the students' families being taken into consideration. Diplomas giving the title of "expert in agricultural sciences" (*ingénieur agronomique*) are awarded. This diploma has to be obtained before admission to the School of Forestry, the School of Rural Engineering, and the School of Stud-breeding. During the last thirty years there have been slightly over 100 students on an average; in 1926 the number was 127.

Diploma students of the Institute of Agricultural Sciences or the National Schools of Agriculture can continue their training for a term or some similar period in the so-called "practice departments". Instruction is given partly at the Institute or at the national school concerned, and partly at the practical agricultural schools or at the experimental stations. At present the following practice departments function at the Institute of Agricultural Sciences :

1. The Department of Agricultural Education, for training agricultural teachers and advisers.
2. The Department of General Agriculture, for training in large estate work.
3. The Department of Physical, Chemical and other Natural Sciences, for training specialists in these subjects.
4. The Department of Agricultural Mechanics, for training in the construction of agricultural machinery.
5. The Department of Mutual Insurance and Agricultural Co-operation, for training managers of credit or insurance funds or agricultural co-operative societies.

The national schools of agriculture have some similar departments. The school at Grignon has a department for industrial crops and for the industries working up agricultural products from the district of Paris. The school at Montpellier has two courses, one for viticulture and oenology, the other for southern cultures and industries. The school at Rennes has two departments, one for dairy industries and one for apple cultivation and cider making.

(c) *Agricultural Faculties at the Universities.*—Most of the Faculties of Science at the Universities supplement their general instruction with application courses. Such application courses have not been developed very far in regard to agriculture. They consist only of instruction leading to certificates in chemistry, zoology or botany applied to agriculture; holders of several such certificates sometimes obtain a Diploma of Applied Sciences. This is the situation at seven Universities. At four other Universities further progress has been made.

The University of Besançon has a course of two terms leading up to a Diploma in Agriculture. It possesses a farm, which, however, is mostly a research station, secondary importance only being given to the teaching of students.

The University of Lyons gives certificates in agricultural chemistry and geology, in applied zoology, and in agricultural botany; these three courses together form the Diploma of Studies in Agricultural Sciences. A Diploma of Higher Studies in Agricultural Sciences can also be obtained, after attendance at further courses in one of the following: viticulture and oenology, mutual insurance principles, special animal husbandry, general crop-growing; these courses are supplemented by visits to certain agricultural establishments, but there is no practical training.

The University of Nancy possesses an *Agricultural and Colonial Institute*. The purpose of this Institute is to give a higher instruction preparatory in a general way to the profession of an agriculturist or an agricultural expert in Europe and the Colonies. The Institute has an Agricultural and a Colonial Department; only the first will be dealt with here. Students who are undergraduates of the University or who are entitled to enter the national schools of agriculture or the Institute of Agricultural Sciences, or have similar qualifications, are admitted without examination; only 5 per cent. of the students do not fulfil these conditions. The courses are open to men and to women. The normal length of a course is two years lasting from 1 November to 1 July. During the intervening summer students undergo a period of practical training on a farm; no opportunity for practical training exists at the Institute itself. Students can either become Bachelors in sciences applied to agriculture or receive a Diploma in Agricultural Sciences, receiving the title of "expert in agricultural science" (*agronome*) if they pass in technical agricultural science, and that of "agricultural expert" (*ingénieur agricole*) if they pass in agricultural engineering.

The number of students has increased considerably since the war. In 1913 it was 86, 66 in the Agricultural Department and 20 in the Colonial Department; in 1926-1927 there were 122 students in the first Department and 31 in the Colonial Department. About 70 per

cent. of students pass at the final examinations. The Institute has a very international character. In 1924 and 1926 members of not less than 27 nationalities followed its courses; at a maximum, 30 per cent. of the students are French.

The *University of Toulouse* possesses an *Institute of Agriculture* which is in many respects similar to that of Nancy, though it lays more stress on education of a practical character and less on the training of agricultural experts; it has a farm of 100 hectares and is also better equipped for giving practical education to future farmers. The instruction is specially adapted to conditions in South-West France. The rules of admittance are nearly the same as at Nancy; students who pass in by entrance examination must be seventeen years of age. Both sexes are admitted. The course lasts three years or six terms. The last term is exclusively devoted to practical work and is passed on the farms of the Institute or on farms in the neighbourhood. During this term students collect material for their final thesis; students failing to qualify for a diploma may obtain a certificate of Higher Agricultural Studies. The number of students is about 180, many of whom are foreigners.

The diplomas of the institutes of the Universities of Nancy and of Toulouse give no admittance to public services (except in Morocco) and are in but small demand among practical farmers; the institutes are therefore not so much visited by French as by foreign students.

B. *Private Schools*

Reference has already been made to the efforts of voluntary agencies in encouraging the teaching of agriculture in general schools. A similar feature in the sphere of purely vocational education are the vocational establishments run by the same voluntary organisations and societies. As regards vocational continuation education, indeed, private courses do not exist, but their place may be said to be filled by the *correspondence courses* intended for boys of thirteen years of age leaving school. The initiative was again taken by the Association of the Agricultural Societies of the South East, and has again been followed by other organisations or by private agricultural schools. Pupils have a text-book at their disposal; during the winter half-year they receive each month a leaflet containing instructions on the work to be done. Their written papers are examined by the Association, which publishes general observations on them in the next leaflet. Sometimes the students are organised in a group with a monitor, who sees that the work is regularly performed and also is ready to give verbal explanations. Courses last two years, at one school even three years. Pupils who are fifteen years of age can pass an examination entitling them to a certificate of practical agricultural studies. A fee varying from 10 to 30 francs is payable. In 1926-1927 correspondence courses were organised by 13 agricultural associations or schools and followed by about 3,300 pupils, of whom 1,700 followed the course organised by the school at Purpan and 770 that organised by the Association of Agricultural Societies of the South East; in 1918-1919 only 98 pupils, and in 1920-1921 only 270, followed this latter course.

One *private agricultural school* situated at Saint Denis-Laval gives an instruction approximately corresponding to that of a public continua-

tion course. It receives boys of thirteen years of age or possessing a certificate of elementary education. The course consists of one year's preparatory work and two years' instruction proper. Practical training is given. The school is moreover intended for wards of the nation or children whose parents are unable themselves to assure their education. There exists one private *winter school* at Janze which gives teaching every Thursday from December to March; the course covers two years and there were 36 students in 1926-1927. There exist also private agricultural winter schools proper, generally attached to whole-year agricultural schools; the courses last up to three winters. Further must be noted the existence of three private *farm schools*.

The remaining private schools can be divided into intermediate and higher agricultural schools. Common to all of them is the principle of aiming exclusively at training practical farmers. They are all boarding schools. The *intermediate schools* show considerable differences and cannot be systematically grouped. The age of admission is generally fourteen, but some schools prefer to admit students at fifteen years of age. Entrance examinations must generally be passed and, as a rule, only those having a certificate of higher elementary education or who have followed for at least one year the instruction at such a school or at a secondary school are admitted. In some cases the instruction given corresponds to that of the public practical schools of agriculture; in some cases it is more advanced, but it is far from reaching the standard of the National Schools of Agriculture, though some schools give diplomas with the title of "agricultural expert". All the schools give religious instruction and also general education, which in conformity with the rules of admission either corresponds to that of a higher elementary school or completes the education given at such a school; the difference between these schools and the secondary schools with agricultural departments is therefore often not great. Courses last two or three years; some schools have also preparatory courses. All schools have farms attached, on which practical training is given. Moreover, more and more interest is being shown in securing for students leaving the school posts as probationers on farms, where under supervision they can get accustomed to practical farm management; several schools either give students an opportunity to pass this probation period on the school farm itself or help them to find suitable farms; the Association of Agricultural Societies of the South East in 1927 established a special committee for this purpose. Of these intermediate schools ten are run under the auspices of the Society of Agriculturists; in 1926-1927 these schools had between 600 and 700 pupils. There exist besides six other private schools of intermediate grade.

Of the schools under the auspices of the Society of Agriculture special mention may be made of two. The first is the school at Genesch, which admits students at sixteen years of age; only students who have matriculated are admitted without entrance examination. The course lasts two years and no general education is given, which is unusual. The other is the secondary agricultural school owned by the Agricultural Society of Anjou. It is one of the few schools run directly by an agricultural society. It admits pupils from thirteen years of age. Instruction lasts two years, but a third year is recommended. The school prepares especially for the Angers Agricultural

Faculty. The school makes a sharper distinction between theoretical and practical instruction than is usually the case. Theoretical instruction is given during the winter months, November to March, at the school buildings in Angers; practical instruction is given at the school farms, from April to July. Sons of farmers are not obliged to attend during the summer term "as they have no need of practical training, which they acquire excellently at home".

A third school is the agricultural school at Les Roches (Eure); this is independent of the Society of Agriculturists. Its rules of admission and the character of its courses are similar to those of the school at Genesch, but it is specially interesting because the students, instead of living in the usual school boarding establishment, live with the director or the teachers of the school.

The *higher private agricultural schools* are four in number, namely, the Agricultural Institute at Beauvais, which is a section of the Catholic Institute of Paris; the Higher Free School of Agriculture at Aix-en-Provence; the Higher Free School of Agriculture and Viticulture at Angers; and the Higher Free School of Agriculture at Purpan-Toulouse. They are all under the auspices of the Society of Agriculturists and form together the Federation of Higher Free Schools of Agriculture, which without diminishing the autonomy of each school permits a certain collaboration and standardisation. The age of admission is sixteen years, except at the school at Angers, where it is seventeen years. Students, unless fully matriculated, pass an entrance examination; at the school at Beauvais matriculation only entitles to a certain advantage at the entrance examination. All four schools give some religious instruction. The agricultural instruction given is such as to form a select body of rural proprietors. The course lasts two years (two-and-a-half at Purpan and three for unmatriculated students at Beauvais). It includes practical training and the work demanded during the summer holidays implies some weeks' stay on a farm. The course ends with an examination entitling to a certificate of study in Agricultural Sciences; holders of certificates are allowed to prepare a thesis for a diploma as "agricultural expert"; both certificate and diploma are awarded by the Society of Agriculturists. At the schools where the course lasts only two years, one year's probation on an approved farm is compulsory for diploma candidates, and such a year is in general considered a natural end to the studies of all students at these schools. The number of students varies from 50 to 100; for all four schools together it was nearly 350 in 1925-1926.

Special Institutions

Public institutions of a special character can be divided into two groups, intermediate and higher. Of the lower institutions the most important are the technical schools designated under the Act of 1918 as among the "schools of agriculture", though still known by their special character. There exist a school of osier-culture and basket-work (34-45 pupils following a three-year course), 5 dairy schools (all with a one-year course—the pupils nearly all enter butter- and cheese-making factories), and a school for shepherds at the national sheep-breeding station at Rambouillet; the latter gives a three to four

months' course every year to boys of seventeen years of age; in 1924 it had 11 pupils.

The private Higher Agricultural School at Purpan has a special section for bailiffs (*régisseurs*). Students must be sixteen years of age and possess a certificate of elementary studies, or must pass an entrance examination. The course lasts two years and includes, besides practical training, theoretical instruction in the principal questions of general and special agriculture. In 1926-1927 there were 12 students.

There exist also some dairy schools (*écoles fruitières*) subsidised by the State and giving gratuitous instruction in butter- and cheese-making to boys sixteen years of age.

Special instruction in agricultural mechanics is given by private institutions. The purpose is to train qualified workers for large-scale farms or to encourage small cultivators to become their own mechanics. These courses exist especially in the Northern Departments, and consist of three lessons per week during December, January and February in two following years. Students must be sixteen years of age.

Among higher special schools of a private character may be mentioned the National School of Agricultural Industries at Douai, the Higher School of Rural Engineering at Paris, and the Oenological Institute at the University of Dijon.

Agricultural Extension Education

Extension work is carried on by the agricultural schools, by the directors of Agricultural Services in each Department, and by agricultural associations.

(a) *The agricultural schools.*—The Act of 1918 states that temporary courses for adults may be organised at agricultural schools. The teaching staff of these schools may be asked by the Department Agricultural Service to give lectures to farmers in the district. Moreover, the teaching staff as such forms a consultative committee, which gives advice free of charge. Other schools have also become important advisory centres, e.g. the Agricultural Institute at the University of Toulouse.

(b) *Agricultural Services.*—In each Department an Agricultural Service is appointed under an Act of 21 August 1912 concerning departmental and communal teaching in agriculture and is charged to popularise knowledge of agricultural science, to encourage agricultural teaching in public institutions, to further the economic and social interests of agriculture, to assist in statistical surveys, in research, and in insurance on behalf of agriculture. The head of each Service is a director assisted by one or several instructors in agriculture for general and special subjects, to each of whom a special district is assigned; one of these is deputy-director. Teachers in the practical agricultural schools can be charged with the function of an instructor in agriculture, and, vice versa, an instructor in agriculture can be charged with the functions of a teacher in an agricultural school.

The education work of the Agricultural Services is carried on at certain public schools, by lectures, and by publications. The director of the Agricultural Service is specially charged with the course of

agriculture in the elementary training college of the Department; at other schools the courses are given by the instructors. The number and programme of the lectures to be given is fixed by an annual Order of the Ministry for each Department. Lectures are given by the instructors; directors of schools of agriculture can give propaganda lectures to attract students to their school in agreement with the director of the Agricultural Service and with the approbation of the Ministry of Agriculture. Publications consist of leaflets, posters and pamphlets containing practical advice, and are distributed in the communes by the mayors or by presidents of agricultural associations and societies.

The Agricultural Services are also charged with the direction of experimental stations¹, with the organisation of agricultural and viticultural demonstrations, of competitions, etc. The big railway companies arrange, in agreement with the Agricultural Services, trains forming itinerant exhibitions; where the train stops farmers are invited to attend lectures on the products and machinery exhibited. As an example may be mentioned the wheat train organised in February 1927 by the Paris-Orleans Company. The train composed of six wagons circulated in five Departments and stopped each day at stations in specially important wheat districts; lectures were given partly by the directors of the Agricultural Services.

The number of directors of Agricultural Services is 86, and of instructors, 167; in 1920-1921 the number of lectures given was 4,517, attended by 238,460 persons; the same year 5,980 experimental fields or demonstrations were arranged.

(c) *Agricultural associations* play an important rôle in the agricultural education system. Examples of their activity in encouraging agricultural education have already been given. In extension work the "rural weeks" and the "rural days" organised by them merit attention. "Rural weeks" were organised for the first time in 1911 by the Association of Agricultural Societies of the South East and by the *Chronique sociale de France*, but no real progress was made until after the war. In 1922 a National Committee for Rural Weeks was set up. A "rural week" is specially intended for young persons. It is organised during the holidays at a school or other place where cheap accommodation can be arranged. The course lasts from three to four or even five days. The subject is generally of a technical kind, weeks treating of social problems are less frequent. Three lectures per day are usually given and visits are arranged to farms; if possible the week is arranged to coincide with a general agricultural meeting, congress, etc. "Rural days" are organised either to prepare the ground for a rural week or for those who are unable to leave their work for several days. As the name implies the meeting lasts a day; two lectures are given.

In 1923 over 20 "rural weeks" and 35 "rural days" were organised.

¹ Experimental work was reorganised by an Act of 6 January 1919, which established eight district agricultural bureaux and a Department bureau in each Department under the management of the director of the Agricultural Service.

(d) *The agricultural cinema* has been made the object of important attempts at systematic organisation. On 5 April 1923 an Act was passed concerning the popularisation and propaganda of agricultural science through the cinema. Grants can be given for the acquisition of films or for the organisation of cinema centres in rural communes or at agricultural schools covered by the Act of 1918. An Order of 30 April 1923 set up a permanent Commission for the Agricultural Cinema. A central bureau for all films exists in Paris. Further, eight district film libraries have been created attached to the eight district agricultural bureaux. Films may be borrowed free by agricultural schools, agricultural associations, public corporations, and certain qualified individuals. During the first working year 467 loans were made of films treating 1,916 subjects. As each film during a loan period is shown on an average five times, in all 10,000 shows have been given and have contributed to propaganda on behalf of agriculture and to the vocational training of the rural population.

Appendix : History of Agricultural Education

The first step towards establishing agricultural educational institutions was taken when, by private effort, an agricultural school was open in 1822. In 1827 the school at Grignon and in 1842 two schools—later transferred respectively to Rennes and to Montpellier—were founded; these three schools became later the national schools of agriculture of to-day. In the 'thirties, farm schools on the Swiss model began to be set up; there were 25 of these schools in 1848. This year saw the enactment of the first Act on agricultural education on 20 October and the establishment for the first time of schools by the public authorities. Long ago Turgot had made attempts to create a public agricultural instruction system, but without success; in 1806 a Chair of Agriculture had been created in the veterinary school at Alfort, and in 1836 some courses in higher agricultural sciences had been given at the Conservatoire of Arts and Trades.

The Act referred to established three grades of agricultural education, the expense of which was to be borne entirely by the State. Elementary practical instruction was to be given in farm schools, of which there was to be one school in each Department. In 1849 45 schools were opened, which, together with the 25 existing schools taken over by the State, made a total of 70 schools of this kind. In 1870 there were only 52 left, in 1894 16, and in 1912 10. After the passing of the Act of 1918 the number of these schools has further decreased and there remains only one now. The recruitment to these schools has always been difficult and the cost of maintaining them rather high. Their task was to train good wage-paid workers and farm foremen, but force of circumstances often gave them the character of an agricultural school, into which they were frequently transformed or else they gave place to an agricultural apprenticeship centre.

In the second place, both practical and theoretical instruction was to be given in district schools. The three schools mentioned above were made district schools and a fourth created, which, however, was closed in 1852. In 1876 the three district schools became the national schools of agriculture. The intention has been to create no less than 22 district schools, one for each type of local agriculture in the country.

Finally, a National Institute of Agricultural Sciences was founded under the 1848 Act as a High School of Agriculture. It was opened in December 1852, but was closed two years later on the pretext that its instruction was out of proportion to the needs of agriculture. The present Institute of Agricultural Sciences was only founded in 1876.

Agricultural education lost ground during the whole period of the Second Empire. The budget for agricultural schools, which in 1852 had been 2.7 million francs, was in 1870 only 1.1 million francs. An Act of 1875 created the practical agricultural schools, which were to give theoretical side by side with practical instruction; they were to fill the gap between the farm schools and the district schools. In 1913 there were 37 practical schools attended by 1,281 students.

An Act of 1879 organised departmental and communal instruction by directing the appointment of departmental instructors of agriculture; this legislation was amended and completed by an Act of 1912, which set up the Agricultural Services. The system has been further enlarged through the creation of the Agricultural Bureaux for experimental and other purposes.

In 1879 the teaching of agriculture was made compulsory in elementary schools. A few years later the subject "agriculture" was replaced by that of natural sciences applied to agriculture. In 1902 the first attempt to create a winter school and to organise itinerant schools with courses lasting a few weeks was made. The Act of 1918 assigned those new forms of agricultural education to the care of the public authorities and created the present system of public agricultural education in France.

Meantime the efforts through which the earliest private agricultural school had been started were continued. In 1847 the Agricultural Society of Compiègne first encouraged private schools in adopting agricultural courses and began to compensate teachers who gave instruction in agriculture outside the regular class hours; in 1868 the Society of Agriculturists of France embarked on the same policy for the whole country. The Institute of Beauvais, the origin of which goes back to 1854, was enlarged in 1865, in which year a State subsidy was granted; a considerable number of other private agricultural schools were founded about the same time and the Catholic Faculties of Lille, Lyons, and Angers opened higher agricultural courses. Up to 1901 the bulk of private agricultural education was in the hands of religious bodies; their expulsion from France in the same year hit such education hard, but lost ground has since been gradually recovered. The Agricultural Institute at Nancy was founded in 1901, that of Toulouse in 1909, and that of Aix-en-Provence in 1920. Of the ten intermediate schools maintained with the encouragement of the Society of Agriculturists of France, three date from before the war (one as far back as 1895), while seven have been founded since 1920.

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SPAIN

Authority and administration; organisation.—Public vocational education in agriculture is regulated under a Royal Decree of 20 June 1924 concerning the organisation of the Agricultural Services and under a Royal Decree of 28 June 1910 approving the regulations for agricultural instruction in the High School of Engineering at Madrid. It is principally administered by the Development Ministry and organised by means of intermediate-grade agricultural schools and the High School of Agriculture at Madrid. Other institutions are administered by provincial authorities. Finally, courses for cultivators and for stockbreeders are organised by the General Association of Stock breeders and by the Chambers of Agriculture.

Elementary education in rural districts.—Under a Royal Order of 17 October 1921 school plots are provided for demonstration purposes at elementary schools on the demand of public authorities, agricultural societies, or teachers. They are managed by the local agricultural organiser or expert, or, in the absence of such a person, by the teacher. The institution of such demonstration plots is recent, and there are not yet very many of them, so that not much information is available; however, good results appear likely. No other measures have been taken to encourage agricultural education in elementary schools.

Vocational Agricultural Education

Intermediate Agricultural Schools

Instruction is given in 13 schools. Their purpose is to train young men for the management of estates and of wineries. Candidates must pass an entrance examination in Spanish, geography, elementary arithmetic and sciences. Courses last three years and are purely vocational. Theoretical teaching is combined with practical work in the field and laboratory. All 13 schools are State schools. Other similar schools are organised and maintained by local authorities; the agricultural school at Barcelona is maintained by the authorities of the four Catalan provinces; similar schools are established in other provinces. Such schools and the diplomas awarded by them are State-recognised. There are also some private schools, such as the Catholic school at Santander.

Higher Agricultural Education

(a) The Royal Decree of 20 June 1924 concerning the organisation of the Agricultural Services suppressed the training of agricultural experts at the intermediate agricultural schools and established a School for Agricultural Experts at Madrid. Candidates must pass an entrance examination in Spanish language and geography, physics and chemistry and other natural sciences, arithmetic, geometry, drawing. The course lasts three years.

(b) The most advanced agricultural education is given at the High School of Agriculture at Madrid; a branch is established at Pamplona where practical work is carried out and examinations held. The purpose of the High School is to train specialists for the public Agricultural Services and technical managers for agricultural institutions. Candidates must pass an entrance examination in the subjects usually taught at secondary schools, elementary philosophy, mathematics, biology and other natural sciences, drawing, French and English, and must have passed a school-leaving examination. Instruction is divided into five principal and one preparatory course.

Agricultural Extension Education

Experimental stations for research and demonstration exist throughout the country. Some experiment stations are concerned with general agriculture, while others specialise in oenology, dairying, fruit culture, etc. The experiment stations undertake to train technical managers, to organise short courses, etc. There are about 100 such centres of instruction. A laboratory of agricultural sciences is also established in each province under the direction of the provincial Agricultural Service, and is responsible for itinerant extension teaching in agriculture. Finally, certain agricultural organisations maintain general and special instruction courses; thus some Chambers of Agriculture engage technical staff to give extension teaching to their members. The General Association of Stock Breeders organises breeding courses each year, which fall into dairy, poultry, and bee-keeping courses.

Principal Source

Answer of the Government of Spain to the Questionnaire of the International Labour Office.

ITALY

Authority and administration; organisation; extent of agricultural education.—There is no single organic Act regulating the work of the various organisations for agricultural education; the different institutions are subject to different Acts and Decrees. In principle institutions for elementary and general education (sometimes including agricultural education) fall under the Ministry of Education, while specialised institutions for agricultural education are subject to the Ministry of Agriculture and Forestry. The administrative methods differ for each of these groups of institutions. The majority are administered directly and solely by the central Government (Ministry of Agriculture and Forestry or Ministry of Education); others are administered by "consortiums" composed of the central Government and the local (provincial or communal) administrations; still others are administered by the local (provincial) administrations. Finally, there are a certain number of institutions set up and administered by private organisations or even by private individuals.

A slight amount of agricultural knowledge is imparted in a number of rural elementary schools. Later there are "six years of supplementary vocational training", of which agriculture forms a branch. There are no elementary agricultural schools, but young persons may attend comparatively extensive courses organised by the itinerant schools; the number attending these schools is about 45,000 per year. There are two types of intermediate agricultural schools for training farm managers. Higher education is given at the higher agricultural institutes. The total number of students in the intermediate and higher schools is between 2,000 and 3,000. For extension education Italy has a typical institution, the itinerant school (*Cattedra ambulante di agricoltura*).

Elementary education in rural districts.—In the elementary schools, at which attendance is compulsory, there is no real agricultural education. At the same time teachers in rural schools must in their work take account of the special conditions of the district in which the pupils live and in which their lives will be passed. Thus the pupils are given some idea of agriculture and agricultural industries. Such education is given by reading selected passages, solving problems, object lessons, etc., relating to the land, the life of plants, crops and their value, etc. Visits are organised to farms, gardens, orchards, stock-breeding farms, etc.

As there are certain schools with a school garden or plot at their disposal for the cultivation of vegetables and the rearing of farmyard animals, the curricula expressly provide that such schools shall teach, if even within very modest limits, the elementary notions of agriculture. Unfortunately, schools of this type are few in number; but when new buildings are being constructed it is prescribed by law that a small patch of land shall be placed at their disposal. The Ministry of Education, which administers the majority of the elementary schools¹, also encourages, in collaboration with special institutions,

¹ Only the administrations of the large communes may undertake the administration of elementary schools on their own initiative.

the creation and development, of schools for illiterate adults in the villages, which give instruction in the evenings and on holidays. In these schools a certain amount of agricultural training is given.

It is impossible to state the exact number of elementary schools in which agricultural education constitutes a part, however small, of the general training. It may be calculated approximately that about three-quarters of the pupils attending the rural elementary schools (i. e. schools in all centres except the capitals of provinces) belong to agricultural families and will for the most part be engaged in agriculture after leaving school. While it is impossible to say how many pupils enjoy theoretical training in agriculture, it may be stated that the great majority of the pupils in the rural elementary schools do so. Approximately 5 per cent. of these receive both theoretical and practical training and this proportion is gradually increasing. At present the Government is enforcing measures for encouraging the elementary schools to assist in the "ruralisation" of the country.

Continuation and secondary education.—In Italy the Elementary Education Act of 22 January 1925 introduced continuation education with a certain amount of vocational guidance, including agricultural training. This instruction is known as "the supplementary vocational course", and when complete includes three classes: two for general education and one (in several sections) for special training. In 1927-1928 there were 926 courses, of which 250 were agricultural; the number of classes was 3,665, attended by 75,573 pupils. But more definite vocational training was found necessary and an Act of 7 January, 1929, provides for the gradual transformation of the above-mentioned courses and similar schools into "secondary schools for vocational training". The aim of these schools is to provide post-elementary compulsory education for children up to the age of fourteen years and to give these children vocational training for different crafts and for agriculture. These schools have three classes, the first two being devoted to general education, while in the third class the instruction deals with one of the following branches: agriculture, commerce, industry, engineering and carpentry, building, textile industry, housekeeping (for girls). In the third class devoted to agriculture, the following subjects are also taught: Italian and one foreign language, history and geography, Fascist culture, arithmetic, the natural sciences, agricultural bookkeeping, drawing, agriculture, agricultural industries and animal husbandry. Instruction is accompanied by practical training. The Act also provides for the organisation of one or two-year courses for vocational training, most of which will be of an agricultural nature. As this Act has only recently been put into force, it is impossible to give any information as regards the organisation and working of these secondary schools for vocational training.

Vocational Agricultural Education

Lower-Grade Agricultural Schools

In Italy there are no lower-grade agricultural schools, but they are replaced to some extent by quite extensive courses organised for young people by the itinerant schools (see below).

Intermediate Agricultural Schools

(a) *The practical agricultural schools* aim at training managers for small farms. The pupils at these schools are young men of between thirteen and seventeen years of age, who have attended elementary schools. They are of three classes: 11 such schools are maintained by a consortium formed by the Ministry of Agriculture and the administration of the province in which each school is situated; there are 9 maintained solely by the administrative authorities of the province in which each school is situated; finally, there are a certain number maintained by private institutions or individuals and recognised by the Ministry. The training given is both theoretical and practical, but chief emphasis is laid on the practical side. The curriculum includes general education and various branches of agriculture.

(b) *The intermediate agricultural schools* exist for the purpose of training managers for medium-sized farms, and a staff of assistants for agricultural graduates engaged in the management of large farms. These schools admit pupils between fourteen and seventeen years of age, who have completed a first-class course of secondary education. The courses last for three years and include instruction in Italian, history and geography. There are 25 intermediate agricultural schools, of which 23 are maintained by the central Government. The number of pupils, including students engaged in special research (see below), was 1,680 in 1922-1923, and 1,295 in 1926-1927.

Higher Agricultural Education

The higher agricultural institutes give their pupils the necessary scientific knowledge of agriculture required for the management of institutions and for a professional career in agriculture, forestry and veterinary surgery. Admission is dependent on completion of a course at the highest type of secondary school or a complete secondary course of eight years after leaving the elementary schools. These institutes grant a Degree in Agriculture, but it should be noted that these Degrees have only academic value. "The right of professional practice is granted only by State examination, open solely to those who have obtained the corresponding specialist's degrees at a higher agricultural or veterinary institute." There are five higher agricultural institutes, situated at Bologna, Milan, Perugia, Pisa and Portici. The number of students in 1926-1927 was 992.

Special Institutions

Nine of the intermediate agricultural schools hold special supplementary courses for viticulture and oenology, for animal husbandry and cheesemaking, for olive growing and the manufacture of oil, for market gardening and fruit growing, and for mountain crops. These courses train staff for each of these branches of agriculture. The technical institutes for surveyors¹ have also sections for agricultural

¹ These are intermediate schools.

science, rural economy and valuation; the Engineering High Schools also hold courses in agricultural science and valuation.

Agricultural Extension Education

(a) *Agricultural itinerant schools*.—There is a very important system of vocational training in Italy carried out by the agricultural itinerant schools. The purpose of these institutions is to give farmers some indications as to the more scientific methods of agriculture. This is done in a simple and striking manner by lectures, temporary courses, consultations, publications and practical demonstrations concerning different crops, stock-breeding and agricultural industries, use of machinery, etc. The work of these institutions is calculated to include more than mere scientific propaganda. The itinerant schools must endeavour to promote the economic organisation of farmers along the lines of co-operation and mutual aid. In addition, they must carry out practical experiments in agriculture in different localities and in general do all in their power to promote and encourage the progress of agriculture, animal husbandry and agricultural industries, either directly or in co-operation with other agricultural institutes and associations.

The itinerant agricultural schools are provincial institutions each managed by a compulsory, legally recognised consortium between the central Government (Ministry of Agriculture and Forestry) and the provincial authorities. The municipal authorities of the Province may belong to the consortium; once they have become members they are bound for the whole period of its existence. Private institutions (co-operative societies, credit institutes, etc.) may also join, but are not bound for more than one year. Each school is managed by a committee consisting of representatives of the Government, the Province and any institutions which have joined the consortium. These schools have at their disposal higher technical staff (director, chiefs of section and assistants); lower technical staff (experts); and administrative and general staff. There are 92 schools, one for each Province. To each school are attached general departments, covering all branches of agriculture, and special departments, covering some special branch of agriculture such as animal husbandry, agriculture in mountainous districts, sericulture, etc. As a rule, general departments are separate from the school itself and situated in the most important centres furthest from the capital of the Province in which the school has its headquarters; special departments for mountain agriculture are situated in the most suitable centres for this purpose; other special departments are situated in the same town as the headquarters of the school. There are 427 general and 86 special departments, of which 38 are for animal husbandry, 15 for mountain agriculture, and 33 for other branches.

(b) *Courses for peasants*.—There exist courses for adult and for young peasants. By an Act of 13 December 1928 the vocational training of peasants is now entrusted to the technical staff of the itinerant schools. This Act also provides for the institution of "farms for the practical vocational training of peasants in agriculture". These farms are intended to give to young peasants a better training than was previously available, so that they may be able to manage a small

farm on scientific lines; they also train workers for positions as bailiffs and if necessary give them special training in certain branches of agricultural practice. The courses for adults last for a few weeks while those for young peasants are longer, and consist of some 80 lessons. They are open to young peasants between 13 and 17 years of age who have finished their elementary education.

COURSES FOR ADULT PEASANTS

Year	Number of courses	Number of peasants enrolled
1925-1926	874	30,241
1926-1927	843	30,420
1927-1928	1,087	39,141

COURSES FOR YOUNG PEASANTS

Year	Number of courses	Number of peasants enrolled
1925-1926	741	21,711
1926-1927	1,026	26,200
1927-1928	1,354	45,677

(c) *The Fascist Provincial Federations of Agriculturists and the Fascist Agricultural Trade Unions* (provincial organisations of agricultural employers and workers) co-operate in certain districts in carrying out vocational training in agriculture by organising courses of instruction in those farms which are considered most suitable according to local needs.

Courses of vocational instruction in agriculture are also organised by the National Association of Ex-service men.

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RUMANIA

Authority and administration; organisation; extent of agricultural education.—The basis of vocational agricultural education was laid down in an Act of 1893. State vocational schools are under the control of the Ministry of Agriculture. The curriculum for agricultural education in general elementary schools is drawn up by the Ministry of Education in consultation with the Ministry of Agriculture; in planning the curriculum of general subjects for the elementary agricultural schools, on the other hand, the Ministry of Education is consulted.

A recent Act has introduced agricultural education in rural elementary schools. Country boys can proceed from an elementary school to a lower-grade agricultural school and from there to an intermediate agricultural school. Special schools exist for the training of agricultural workers; the most advanced agricultural education is given at two High Schools of Agriculture and one University.

The total number of students completing their education at vocational agricultural schools is a little below 1,000 each year; this is out of an agricultural population which, according to censuses dating from before the war, cultivate at least 200,000 holdings of more than 10 hectares and 350,000 holdings of from 5 to 10 hectares (territory corresponding to the present Kingdom of Rumania).

Elementary education in rural districts.—Attendance at an elementary school is compulsory. Before the appearance of the new Education Act of 29 July 1924, the pupils were given no vocational training, but the lessons made reference to subject matter concerning agriculture. The new Education Act proposes to introduce agricultural instruction in rural elementary schools in order to arouse the interest of the peasant population in school education and check rural depopulation. The first four years of elementary school education are devoted to general subjects; meanwhile, the children are familiarised with agricultural and household tasks. During the second three years, chief stress is laid on developing the children's practical vocational knowledge. This training may be agricultural, industrial, or commercial, according to the needs of the scholars. During this period the girls are trained in domestic science. Agricultural training includes horticulture, fruit growing, and viticulture. For this purpose the schools are provided with gardens and fields; the gardens have a minimum size of half a hectare, and the fields of 4 hectares, of which 3 must be used for experimental work. The curriculum leaves it to the teacher to arrange the practical training according to the special products of the district. Theoretical instruction is reserved to the winter and confined to a description of the most important species of plants and the most important agricultural operations.

Continuation and secondary education.—Since 1924 attendance at a continuation school is compulsory for all illiterate persons between twelve and eighteen years of age and other persons between the same ages who have not completed a course of elementary instruction, but there are no continuation schools which give special agricultural training.

No agricultural training is given in secondary schools. Only a few schools have introduced agricultural training as an experiment.

Vocational Agricultural Education

Lower-Grade Agricultural Schools

The purpose of these schools is to provide practical vocational training for workers, employees, and the sons of small peasants. Pupils must be fourteen years of age. Those who have completed a full course at the elementary schools have preference, but boys who have not quite completed their elementary education, but can show proof of sufficient practical knowledge of agriculture are admitted. The theoretical part of the training, which is of subordinate importance, is limited to elementary facts. A certain amount of general education is provided, particularly in winter. Courses last for two years. There are 12 such lower-grade agricultural schools, of which 9 belong to the State and 3 are private. In 1924-1925 the number of pupils was 269. An agricultural winter school, which has for the present been instituted as an experiment, is also reckoned among these lower-grade schools. It had 32 pupils in 1924-1925.

Intermediate Agricultural Schools

This is by far the commonest type of agricultural vocational school in Rumania. The schools aim at training efficient farmers, but without ignoring the claims of their pupils' general education. Teachers for lower-grade agricultural schools are also trained in these schools. Pupils must be fourteen years of age and have completed a course at a lower-grade agricultural school, but pupils who have attended the general elementary school only are also admitted. Theoretical training is much wider than in the lower-grade agricultural schools, consisting of approximately 1,100 hours in a three years' course of 32 weeks per year; in the second and third years, special subjects are taught. Emphasis is laid on practical training. The schools are provided with extensive land for this purpose, and pupils are expected to become acquainted with all types of practical work. Laboratory courses are also given. A certain number of the pupils are boarded; this is compulsory for all those who are in receipt of scholarships from the State, municipalities or local authorities. Of 34 intermediate schools 28 are run by the State and 6 are private. The total number of pupils in 1924-1925 was 2,070.

Higher Agricultural Education

Two Agricultural High Schools, one in Bessarabia and the other in old Rumania, give more advanced agricultural training, which enables their students to become principal managers on Crown lands or other large estates, or to be appointed as teachers in lower-grade agricultural schools; officials in agricultural institutions and experimental stations are also chosen chiefly from among former students of these schools. Students must be eighteen years of age, and have completed a 4-year course at a secondary school. Completion of a course at an intermediate agricultural school is also accepted for entrance, but in this case an entrance examination is prescribed. Courses last for four years, of which the first three are devoted chiefly to theoretical instruction; practical instruction is given on farms attached to

the schools. The schools are boarding schools; no tuition fees are charged. A certificate is awarded on a final examination. The two schools have together about 250 pupils.

The Agricultural High School in Bucarest, the Agricultural Academy at Klausenburg in Siebenbürgen, and the Department of Agricultural Science at the University of Jassy, which was founded in 1913, provide the most advanced agricultural education and encourage agricultural science. Students must have completed their education at a secondary school (classical or mathematical side), but if the entry is small these regulations may be relaxed. An entrance examination must be passed. Courses last for four years, of which two and a half are devoted to theoretical training and 18 months to practical instruction given on a model farm. The most distinguished students receive a diploma in agricultural science on an examination; special examinations are held for teachers of agriculture.

The University of Jassy grants the Degree of Doctor of Agricultural Science.

The total number of students in the Agricultural High Schools in Rumania in 1924-1925 was 264.

Special Institutions

Rumania possesses several special agricultural schools of elementary, lower, intermediate and higher grade :

Lower-grade schools		Number of pupils
1 horticultural school		21
1 rural crafts school		15
Intermediate schools		
6 horticultural schools		253
6 viticultural schools		269
1 apicultural school		39
Higher schools		
1 horticultural)	which together have approximately 200 pupils.	
1 viticultural)		

In certain agricultural schools, special courses have been instituted for the training of tractor drivers. Students must be seventeen years of age, and have completed their education at an elementary school; sons of peasants and those who have attended agricultural schools are given preference for entrance. Instruction is both theoretical and practical and is supposed to cover the handling of up to ten different systems of tractors. The course finishes with an examination.

Agricultural workers' schools.—These schools are attached to various estates for the purpose of training agricultural workers. The entrance age is from sixteen to twenty-five, and pupils must have completed an elementary school course. Training lasts for three years; from 1 November to 15 March three hours of theory are given each week; the course finishes with a theoretical and practical examination. Students receive board, lodging, and pocket money. In 1924-1925 there were 20 of these schools attended by 262 pupils.

Agricultural Extension Education

The Ministry of Agriculture institutes itinerant lectures and courses during the summer. These are given by State officials, stock inspectors, school inspectors, or agricultural teachers, and are held in various districts, either on farms belonging to agricultural schools or on any suitable private farms. Courses last from 3 to 11 days or may even extend to 3 weeks; training is both theoretical and practical. Courses have been held in general agriculture, stock and poultry breeding, fruit growing, viticulture, bee-keeping and seed testing.

An Act of 20 June 1927 set up a Chamber of Agriculture, membership of which is restricted to agricultural experts. Staff for the management of the Crown lands and for all other agricultural institutes which are subject to State control are selected from this body. Another Government service includes the Rural Agricultural Bureaux, which are centres for supplying information to farmers, for carrying out Government enquiries into agricultural matters, and for assisting in the organisation of estates and in stock-breeding work.

In Siebenbürgen agricultural associations exist which 50 years ago founded the first private agricultural schools. These associations help considerably in spreading agricultural education.

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YUGOSLAVIA

Authority and administration.—Two Ministries are responsible for agricultural education in the Serb-Croat-Slovene Kingdom; the Ministry of Agriculture for all agricultural schools and agricultural extension instruction, the Ministry of Education for all University agricultural instruction.

Elementary education in rural districts : continuation education.—Elementary education is compulsory. Hitherto instruction in agriculture has not been included in the curriculum, but the question is now under discussion.

Some agricultural continuation classes exist. In the district of Maribor 12 classes attended by 269 pupils were held in 1926-1927. Such agricultural continuation classes will be further developed on the following lines. The local authorities shall decide whether certain agricultural classes are to be established. If created the attendance becomes obligatory for all children over fourteen years of age, unless they follow other classes or live more than 6 kilometres from the

school buildings. The instruction is to be given by elementary school teachers who have attended a special agricultural course. Courses will last two years and will take place in the winter from 15 November to 1 April for six hours weekly. Tuition will be free and will, in addition to general subjects, include farm management, agricultural co-operation, and agricultural law. No other vocational training will be given.

Vocational Agricultural Education

Lower-Grade Agricultural Schools

Eight lower-grade agricultural schools for the training of future cultivators of small holdings now exist. These are attended by boys from fourteen to eighteen years of age, who are sons of farmers and have completed the elementary school. The duration of the courses, which are both theoretical and practical, varies from one to three years; the two-year course seems to be the most common. State bursaries can be obtained in the form of free board, lodging, and clothing.

Intermediate Agricultural Schools

Three intermediate agricultural schools exist principally for the training of cultivators of medium-sized farms, although some of the students find employment in State service or in the agricultural co-operative societies. Students are between fifteen and nineteen years of age and have either attended a lower-grade agricultural school, in addition to passing an entrance examination, or have attended a secondary school. Courses last four years, three of which are spent at the school, whilst the fourth is spent in practical work on a government or private farm. State bursaries are available.

Higher Agricultural Education

The highest agricultural education is given at the Agricultural Faculties of the Universities of Belgrad and Zagrab; their purpose is to give advanced theoretical training. Students must have attended a secondary school and pass a university matriculation examination. Students passing the final examinations set by these Faculties obtain the title of "agricultural expert".

Special Institutions

There exist a certain number of special schools with one-year courses. Five of these schools are stock-breeding schools and two are vine and fruit-cultivating schools.

Agricultural Extension Education

Short courses for farmers are organised in the lower-grade agricultural schools and in the special schools. General extension work is also organised by the agricultural services of each county. At the head of this work is a Government official aided by from one to four technical advisers for the various branches of agriculture. This staff,

together with the staff of agricultural schools, experimental stations, and itinerant teachers, organise seasonal and short courses and give lectures on various agricultural subjects for adult farmers.

Principal Source

The answer of the Government of Yugoslavia to the Questionnaire of the International Labour Office.

GREECE

Authority and administration.—The Minister of Agriculture is responsible for agricultural education in Greece. As a rule, State schools can only be established with the consent of the Agricultural Advisory Council. The Minister is authorised to give grants for agricultural teaching to lower elementary schools established and maintained by communes, societies, religious bodies, chambers of agriculture, co-operatives, etc. The present system of agricultural schools is governed by a series of Acts and Orders published during 1919 and 1920.

Elementary education in rural districts.—Attendance at elementary schools is now compulsory for all children between seven and twelve years of age. The curriculum of all elementary schools includes instruction in agriculture, and all teachers in such schools must have followed a special agricultural course combined with practical work in agriculture. Agricultural instruction is principally given by means of school gardens cultivated by the pupils, and also by means of visits to neighbouring farms, lectures, etc.

Vocational Agricultural Education

Lower-Grade Agricultural Schools

Lower-grade practical schools can be established by the Minister of Agriculture, but not more than one school in each department. The object of the school is the practical vocational training of children of parents wholly or partly engaged in agriculture, with a view to their becoming good farmers capable of managing their own properties, or acting as overseers or foremen on large scale farms. The pupils must be not less than fourteen or more than eighteen years of age and must produce a school-leaving certificate from an elementary school. The course lasts two years and the instruction bears on the most indispensable elements in all branches of agriculture, with further instruction in the branches most prevalent in the district. In order to make this specialisation in teaching possible, schools may be of three kinds: (1) schools intended for large-scale farming; (2) schools specialising in stockbreeding, or more especially in dairy work; (3) schools of arboriculture and viticulture. During the first year the instruction is the same in all schools and comprises such general subjects as reading and mathematics. Practical instruction is given for five hours per day and also during the summer vacation between the two school sessions. Pupils are boarded in the school and receive

board and instruction free and are supplied with clothing and boots; medical attendance is also free. However, only two such schools, attended by 60 pupils, exist.

Intermediate Agricultural Schools

Legislation authorises the establishment by Royal Decree of not more than six intermediate agricultural schools, either general or for any special branch of agriculture. The object of these schools is the theoretical and practical farming of young persons intending to carry on agriculture either on their own account or for others, or to enter the agricultural services of the State. Pupils are boarders or day scholars. Boarders must be not less than fourteen or more than eighteen years of age; day scholars must be not more than twenty-three years of age. Pupils must possess a school-leaving certificate from an elementary school or its equivalent. The course lasts three years; the first year's instruction includes some instruction in Greek, but the other subjects are all of a vocational kind. Some practical training is given and is also continued during the summer vacations. The last part of the third year is exclusively devoted to practical training. Scholarships are given to pupils of intermediate agricultural schools obtaining the first three places in the examination for diplomas in order to enable them to follow the courses of a higher agricultural school, provided, however, that they possess a certificate from a secondary school and can pass the entrance examination of the High School. Three intermediate schools, attended by 100 pupils, exist.

Higher Agricultural Education

One higher agricultural school, offering a four-year course, exists: the instruction is both theoretical and practical; it comprises training in laboratories and on farms. Scholarships are given to students obtaining the first ten places in the entrance examination. The school has about 85 students.

Special Institutions

As mentioned above, the lower-grade agricultural schools are at the same time special schools.

Agricultural Extension Education

Courses of practical instruction in special subjects may be given at the lower-grade agricultural schools, to which non-resident students may be admitted. There is an agricultural organiser and one or two assistants in each department. The staff of the agricultural schools deliver lectures, maintain experimental plots, demonstrate the use of improved machinery, distribute selected seeds, etc.

Principal Source

The answer of the Greek Government to the Questionnaire of the International Labour Office.

BRITISH EMPIRE (WITHOUT INDIA)

GREAT BRITAIN AND NORTHERN IRELAND

England and Wales

Authority and administration; organisation; extent of agricultural education.—There is no general law regulating the whole system of agricultural education in England and Wales. Agriculture and allied subjects, e.g. horticulture, dairying and poultry-keeping, come under the definition of "higher education", which has been dealt with in a series of general Education Acts, now consolidated in the Education Act, 1921.

The county council is the local authority in charge of education over the county; the powers of the Ministry of Agriculture (conferred by the Board of Agriculture Act, 1889) in connection with agricultural education are limited to aiding and inspecting such education as is provided by colleges, which hold a more or less autonomous position, and by local authorities. The Minister has no power to force the county councils to make any provision for agricultural education.

Under an arrangement between the Board of Education and the Ministry of Agriculture, continuation and vocational courses, including instruction in both agricultural and general subjects, will be encouraged by both authorities; when a course of this nature is primarily agricultural it will be aided by the Ministry of Agriculture; when general education predominates, by the Board of Education. The Ministry contributes two-thirds of current expenditure and 75 per cent. of capital outlay, including all educational buildings, equipment, etc., incurred by agricultural educational schemes of local authorities, provided that these schemes have been previously submitted and approved. In certain respects—e.g. the salaries of agricultural organisers, to which the Ministry of Agriculture attaches special importance—the contribution of the Ministry may be increased to 80 per cent.

The elementary school does not teach agriculture, but gives pupils an opportunity of manual training in several directions, e.g. in wood-work, gardening, mechanics, etc.; in special advanced elementary school divisions a more vocational bias can be given. Continuation education is voluntary, and attracts but few. Vocational education takes the form of local day or evening courses with lessons mostly once a week, and of winter courses, or still shorter courses, at the so-called farm institutes. Higher education is given at agricultural colleges and at Universities. Extension work is organised by the counties; though sometimes very developed it reaches very different standards in the various counties. In fact, the initiative left to the county councils has the result that a great variety of agricultural education has been created in England, which partly explains the length of this section. On the other hand, the differences are not so great that some general features cannot be observed.

The number of students leaving agricultural colleges each year to take up farming seems to be about 700, three-fifths of whom may be assumed to have taken a certificate or diploma course, the remainder

have followed courses of less than two years' duration; about 350 of the students had previously taken intermediate agricultural courses at farm institutes. Compared with the total of 400,000 holdings in England and Wales, of which 54 per cent. are over 20 acres, the figure is not high. The instruction given in local extension courses seems to give some agricultural knowledge to about 10,000 persons annually; but as some of the courses last two or three years and students may follow several classes, the figure does not indicate the number of young agriculturists trained annually. It seems evident, however, that for the present the centre of gravity in the vocational agricultural education of England lies in this direction. Over 100 wage-paid agricultural workers or children of wage-paid agricultural workers or of rural workers or smallholders in a similar position are now benefiting each year from a system of scholarships which provide the whole cost of maintenance and of vocational agricultural tuition over various periods.

Elementary education in rural districts.—Attendance at an elementary school is compulsory until the age of fourteen.

The question of the right education for children in rural districts has been very much discussed in recent years. The inclusion of practical subjects in the curriculum is allowed and encouraged by the authorities. In a Circular Letter dated 28 May 1925, the Board of Education states that it should be possible for the country child to learn something of the fundamental principles of mechanics, to make some study of air, water, heat and light, with a view to understanding the processes of plant and animal life, and to apply simple tests in the examination of soils. Further, the Board recommends the keeping of small live-stock at the schools, the providing of the schools with rural readers and text and reference books, also mechanical training. Provisions for handicrafts exist in a fairly large number of schools and practical instruction centres are visited by pupils from several schools. During 1925-1926, 1,789 centres for handicrafts existed, but only 40 centres for gardening: when gardening is taught it is generally at the school. Gardening classes are limited to 20 pupils per teacher. The "dual plot" system, under which a boy with some experience works along with a beginner, is favoured. Most gardens have a part set aside as a common plot where demonstrations are given. About two hours are given each week during one school session, or longer during the growing season. The number of children receiving such instruction in 1924-1925 was 112,867 boys and 8,771 girls; 4,848 departments gave instruction to boys only, 46 to girls only, and 741 to boys and girls.

Visits to farms are not much in vogue. In Hertfordshire an interesting scheme has been started, under which children are to be systematically taken to farms and supplied with a questionnaire whereby they are taught what to look for.

The agricultural bias which has thus been given to instruction in rural elementary schools is not intended as vocational training, but during 1924-1925 instruction of a more definitely vocational kind, e.g. dairying, milking, butter-making, keeping of goats, rabbits, bees and poultry, was given in 3 boys' departments, 1 girls' department, and 43 mixed departments. Moreover, since the adoption of the Education Act, 1918, two new types of higher elementary schools

have come into existence, the central schools or classes providing instruction for selected children up to the age of fifteen, and the senior schools or departments for children from eleven to fourteen years of age. Conditions in rural areas have usually been most favourable to the foundation of the non-selective type, but the selective central schools also are slowly being developed in rural districts. In these schools the curriculum is strongly-biased. Not uncommonly in such schools mathematics includes practical field measurements and surveying with simple instruments; science includes some biology, as well as elementary chemistry and physics; handwork implies the handling of various materials; gardening includes the cultivation of fruit and flowers; and poultry, bees, rabbits or goats are kept for practical training in biology.

As an example of practical training in a rural school, may be mentioned a scheme of instruction in practical mechanics organised at Onibury Church of England School since 1925. The instruction, one hour per week, is given by the village blacksmith to boys over thirteen years of age who will probably take up farm-work on leaving school. They are taught the manipulation of various tools and of implements such as ploughs, harrows, drills, etc., learn to remove broken parts, and to oil the machines. In the English lesson, oral questions are given on the work done at the smithy and the names of the tools; the boys are taught to write letters, make enquiries or give orders for spare parts; in the drawing lesson free-hand drawing of the principal tools are made, etc. During the first three years' working of the scheme 27 boys took the full course : of these 16 are employed on farms in the immediate neighbourhood, 4 are employed in gardens, 3 are doing casual work. Unfortunately it has not always been possible to find smiths to enable the desired extension of the work, which, however, has developed in other directions. In three schools practical instruction in horticulture is carried out by head gardeners of neighbouring estates, in others instruction is given in cattle rearing and milk products, the children being in part taught by farmers or farm stewards. In all, practical instruction has been given in Shropshire as follows ¹ :

Subject	Number of children	Subject	Number of children
Gardening	2,193	Dairy work.....	19
Poultry-keeping	179	Bee-keeping.....	80
Rabbit-keeping.....	46	Agriculture	92
Practical mechanics	298	Metal work	53
Woodwork.....	659		

Continuation education.—Continuation education is voluntary; legislation tending to introduce compulsory attendance until the age of sixteen has not yet been enforced. Instruction is generally given in evening classes. Evening schools in rural districts are attended mainly by workers. During the war the number of classes, which had always been small, namely 1,600, declined to less than a third and has not increased since. Instruction has usually a rural bias, and is

¹ Information given by the Secretary for Education, Elementary Education Dept., Shropshire County Council, Shrewsbury.

freely illustrated by means of rural and local examples, e.g. in the woodwork classes articles of use on the farms are usually made; general subjects are also included. In 1927 a new arrangement was made between the Ministry of Agriculture and the Board of Education whereby these two authorities agreed jointly to encourage the provision in favourable areas of schools with a more distinct agricultural bias; these will differ in their instruction somewhat from the evening classes hitherto existing, though the principle of continuing general education will be maintained. Some counties have started to carry out this scheme.

Secondary education.—Many secondary schools in the small towns illustrate their lessons freely from country life; at most of these schools there is a school garden. In the science courses an attempt is usually made to secure as close association as possible between laboratory practice and the problems which face the farmer. A very few secondary schools have a definitely rural bias. The demand for these schools is not great; even in the most remote rural districts, seldom more than 25 per cent. of the total number of pupils take up agriculture. Some of the schools keep the curriculum sufficiently general throughout to suit all pupils, others give special scientific and practical teaching to some of the boys after the first three years.

Vocational Agricultural Education

Lower-Grade Agricultural Schools

Local courses.—These are organised by the local authorities and represent the lowest grade of agricultural education. They are usually provided free or at a nominal charge and take various forms, as set forth below.

(a) *Day courses.*—The subjects include agriculture, veterinary science, farriery, agricultural machinery, dairying (including clean milk production), horticulture, and poultry-keeping. In 1926-1927 320 courses were given to 3,450 students. The following remarks refer especially to Derbyshire, and describe a typical local course. In this county each class for men meets on one day per week during the winter half-year and from May to July. The subjects taught to men in the first year are crop science, veterinary science, animal husbandry, and farm management; those taught to women are farming, veterinary science, horticulture, bee-keeping, domestic science, poultry-keeping, and demonstrations in dairy work. Home study is encouraged. A special feature is made of farm mechanics and workmanship; harnessing draught horses, driving the team, setting the plough, etc. Three or four afternoons are devoted to out-door demonstrations and each class has, in addition, one or two whole-day excursions to districts where they can see a different kind of farming from that practised in their own neighbourhood. Students ready to spend a second winter in learning can take a second year repetition course of a higher standard. In the case of Derbyshire, students seem to be farmers' sons or tenant farmers twenty to forty years of age actually engaged in farming. An enrolment fee of £1 is charged, but this is, in part, returnable to students who make the requisite number of attendances and pass

the examination. Assistance towards the costs of travelling can be granted.

(b) Evening classes.—These give instruction in farm book-keeping, agricultural machinery, horticulture, dairying, poultry, and bee-keeping. In 1926-1927 310 such classes were organised attended by 7,100 students. In Cornwall the courses open in October, extend through 26 weeks to April, are held in eight centres, and attended by between 300 and 400 students for three hours on one evening a week. The complete course occupies three years: first year, plants, soils, manures; second year, manures and crops; third year, stock-feeding, rations, costs. Sons of small farmers predominate in the classes, but probably a larger percentage of the farmers with over 100 acres than of the smallholders send their sons to the classes. There are frequently one or two women. About three-quarters of the cost of travelling is allowed.

(c) Correspondence courses.—In 1924-1925, when such courses were first started, there were five courses with 73 students, in 1926-1927, nine courses with 60 students. The courses differ rather in length and in subject. On the whole, the classes held are considered very successful; a large percentage of the students complete the course. When, however, the classes extend well into the spring, the pressure of work often prevents students from doing so. As a rule, no fees are paid, but pupils must buy their text-books.

(d) Instruction in manual processes.—This instruction seems to vary in form from regular courses to organisation of competitions, often as a link in extension work; local authorities collaborate with ploughing associations, etc. The courses aim at giving manual training only in those special jobs which can be considered as skilled agricultural craftsmanship. In 1926-1927 350 courses in ploughing, hedge-laying, ditching, thatching, sheep-shearing, basket-making, hurdle and spar-making, milking, etc., were held; they were attended by 2,900 students; in 1922-1923 there were only 104 classes and 874 students.

Intermediate Agricultural Schools

Farm institutes.—Of 15 farm institutes, one belongs to a foundation, one to two county councils in common, and 13 to county councils, but at present by no means all counties have farm institutes; it is hoped that eventually one will be attached to each county, as much stress is laid on the part which they may play in agricultural education. The institute course is designed for farmers, principally small farmers, who cannot afford the time necessary for a long course of instruction, but to whom can be given, in a comparatively short period, fundamental teaching which will put them in touch with modern methods in farming. Students must be sixteen years of age. The courses are of various length, but the most common course is a winter course of two terms, together 20-22 weeks. The curricula are wide and deal with all branches of agriculture. One institute has a two-year diploma course, one a two-winter course, several a one-year course. Some institutes, on the other hand, have quite short courses in general agriculture, e.g. 11 weeks or even one month for non-residential students. In addition, there are special courses for women during the

summer, the object of which is to render the woman student an efficient partner in the management of a small farm; women who desire further teaching with a view to independent management are free to follow the men's courses in the winter, but one institute has a six-month course for farmers' daughters and women smallholders who desire a general training.

As the principal courses are held during the winter, only a limited use can be made of the farms attached to the institutes (one institute has no farm). Some of the institutes take a limited number of pupils for practical training, but there is no system of placing pupils on approved farms¹.

In 1926-1927 the total number of courses at the institutes was approximately 100 attended by 900 students; 50 of these courses, attended by 566 students, were courses in dairying. The institutes are both residential and non-residential. Fees for tuition, board and lodging together generally amount to between £1 and £1 10s. per week.

Higher Agricultural Education

Higher agricultural training is given in Departments of Agriculture of certain Universities and at agricultural colleges. Private benefactions have contributed to create some of these opportunities; other institutions are maintained by two or more county councils; the Ministry of Agriculture assigns a block grant to each institution (with one exception). In the opinion of the Ministry of Agriculture, the Universities must remain the natural training ground for the agricultural expert, the colleges concentrating on the preparation of those who intend to become practical farmers, managers, land agents, etc. Students entering the agricultural departments of Universities, of which there are eight, must have matriculated. The University courses are Degree or Diploma courses and last at least three or four years; they are fundamentally scientific in character and aim at training expert investigators or teachers; an experimental farm is available. A special department, the School of Rural Economics, attached to the University of Oxford, has recently provided scientific training on the economic side of agriculture. Fees are paid at all Universities, but many students hold scholarships (see special section below). Women are admitted.

The agricultural colleges, of which there are seven, also aim at giving a complete agricultural instruction, but are more practical in character. Students are normally admitted between the ages of sixteen and eighteen, are expected to have had a sound secondary education and are sometimes required to pass an entrance examination; some colleges require practical experience, others allow intending students to reside one year at the college in order to do practical work. Courses vary from two to four years and can even be limited to two winters. Diplomas, and for shorter courses certificates, are given. All colleges have farms; at some colleges students take part in practical work. At the Royal Agricultural College, Cirencester, students must reside a complete year

¹ Individual farmers sometimes take paying pupils at £100 to £150 a year, but such arrangements are purely private and have no connection with any organised educational system.

at a farm after leaving and prepare a report on the management of the farm before gaining their diploma. One college is exclusively for women. Some colleges also provide shorter courses, varying from six weeks to six months, intended for those already actually engaged in farming.

The total number of students at University departments of agriculture and agricultural colleges is about 2,000; the number of admittances annually is about 500. Of 1,977 students in 1926-1927, over 60 per cent. were taking courses of two years or longer; 199 were attending special courses. It is estimated that not more than one-third of the students are sons or daughters of farmers or have been brought up on the land. The future intentions of students leaving in the spring of 1924 is shown in the following table :

(1)	Originally connected with farming (2)	Intending to take up farming (3)	Taking up posts connected with farming (4)	Desiring official posts		Doubtful as to future intentions (7)	Not intending to take up agriculture (8)	Total of cols. 3 to 8 (9)
				Home (5)	Abroad (6)			
Number of students.	329	674	215	143	75	37	7	1,151
Per cent. of students	28.6	58.6	18.7	12.4	6.5	3.2	0.6	—

Special Institutions

(a) *Avoncroft College*.—This recently established residential college for landworkers provides a broader education than that given in the farm institutes; in fact, it combines some technical agricultural instruction with a widening of social and cultural interests and is intended to do for agricultural wage-paid workers what the well-known Ruskin College has done for many years for industrial workers. Students must be eighteen years of age. The course lasts three terms, beginning in the autumn and ending in June of the following year. The curriculum includes scientific, economic and literary subjects related to agriculture and rural life. Students undertake regular work on the college farm and also receive instruction in carpentry, smith's work, and motor mechanics. Practical instruction is given introducing the student to the most modern methods of small farming. Some students have been admitted from foreign countries. Fees are payable, but students may hold scholarships or receive grants from various sources.

(b) *Special courses at farm institutes*.—Farm institutes have courses in dairying, many also in poultry-keeping, bee-keeping, and horticulture, or courses comprising two or more of these subjects. These courses are mostly attended by women. Dairying plays a very important rôle in English farming, and though dairy and cheese factories are developing, a great deal of milk is still handled on the farm itself, mostly by women. Usually there are summer dairy courses lasting

about three months or less; but longer courses up to two years are also provided.

	1923-1924	1924-1925	1925-1926	1926-1927
Number of courses	41	37	46	50
Number of students	482	462	487	566

(c) *The British Dairy Institute* is open from February to the end of the autumn term; it gives both theoretical and practical instruction arranged to suit the requirements of those who need either elementary or advanced dairying instruction, or who want to specialise in bacteriology or chemistry applied to dairying. The Institute is affiliated to University College, Reading, which has both a six-month and a two-year diploma course in dairying (practical work is done at the Institute).

(d) Two other *University departments* have diploma courses in dairying, one lasting six terms, the other two winters; a third has two ten-week summer courses in dairying and domestic science. Two of the *agricultural colleges* also give special instruction in dairying, varying from six-week courses to a two-year diploma course; one of these is reserved for women and trains dairy instructresses and manageresses. The Yorkshire County Council maintains a special dairy and poultry school, which gives three six-week courses each summer. University College, Reading, organises two-week courses for milk recorders.

(e) *Special courses in poultry-keeping*, varying from twelve weeks to one year and even two years are provided in three agricultural colleges; at one college there is special facility for research. Finally, it may be added that the Horticultural College for Women, which otherwise falls outside the scope of this study, gives short courses of from five to ten weeks in dairying, poultry-keeping, bee-keeping, farm work, etc.

STUDENTS AT UNIVERSITY AGRICULTURAL DEPARTMENTS
AND AGRICULTURAL COLLEGES, 1923-1924, ATTENDING SPECIAL COURSES

	Dairying	Poultry-keeping
Diploma courses.....	64	6
Certificate courses.....	7	37
Special courses	79	1
Short courses.....	154	21

Agricultural Extension Education

(a) *Advisory, lecturing and demonstration work.*—The backbone in the agricultural extension work in England is the system of county organisers and provincial agricultural advisers. All counties, with the exception of eight, possess an agricultural staff consisting of at least one agricultural organiser, and usually also including instructors and specialists in agriculture, dairying, etc. The organiser and his staff have to carry out a county scheme for agricultural education, which includes the organisation of the day and evening classes mentioned above under lower-grade agricultural education, and lectures at the farm institutes. There are further 14 provincial agricultural advisers paid by the State, to whom questions can be referred by the county staffs; in most cases they work in close connection with the

provincial agricultural college. One of the latest developments is the appointment of special advisers in farm economics, who do both advisory, farm accounting, and survey work; the Oxford Institute of Agricultural Economics co-ordinates such work for the whole country. In general, the work of the county staffs and of the provincial advisers is co-ordinated by means of regular conferences. Questions can also be referred to the various specialist research stations, to the special live-stock officers appointed by the Ministry of Agriculture under its scheme for the encouragement and improvement of the breeding of live-stock, or to the principal technical advisers of the Ministry of Agriculture. All such reference must go through the county agricultural organiser and the head of the provincial college.

The extension work arranged by the county agricultural organiser comprises short courses, lectures and demonstrations, and arrangement of experimental fields. Short courses are held in most of the counties and apply particularly to dairying. These courses are given in travelling schools, which spend two days to a fortnight at each centre. Instruction is given in butter or cheese making, or in both subjects, and in addition dairy farms are visited.

	1924-1925	1925-1926	1926-1927
Number of travelling dairy schools.....	39	38	32
Number of students.....	2,585	2,728	2,767
Farms visited.....	817	1,106	974

A scheme of co-operative cheese schools has also been established on similar principles. Applicants must undertake to provide premises, deliver a stated minimum of milk, agree to accept payment for the milk on a strictly co-operative basis, and take an active part in the business of the school. The plant is lent by the Ministry of Agriculture, and the county educational authority then conducts a school for two or three months. The school is generally held during the flush milk season. At the end of the period the farmers concerned decide whether to form a co-operative cheese society. Interest in this kind of school has not been too great. At present about 50 farmers participate yearly.

The number of extension lectures in all branches of agriculture, demonstrations, and other meetings is constantly increasing. In 1922 it was 7,700 and in 1926-1927 9,500. More detailed figures can be given for the special lectures on dairying.

	1924-1925	1925-1926	1926-1927
(a) Clean milk production :			
Lectures and demonstrations ...	544	667	582
Attendance (approx.)	12,600	17,000	17,700
(b) General dairying :			
Lectures and demonstrations ...	198	290	405
Attendance (approx.)	6,300	10,000	16,000

The Ministry of Agriculture or the staff of the advanced experimental stations sometimes take the initiative in arranging demonstrations and lectures throughout the country on certain subjects. For example, in 1924-1925 and the following years demonstrations in mole plough draining with a tractor-drawn plough were arranged. Further, the counties often follow the invitation of the Ministry of Agriculture

to participate in schemes for conducting demonstrations and experiments over the whole country on uniform lines in connection with such subjects as grass land improvements, potato trials, spring cabbage trials. The number of such experiments on these or other problems is very considerable. An interesting form of demonstration field has been established in Dorset on one of the county council smallholdings. The occupier works under the immediate direction of the agricultural organiser, the arrangement being that the county council pays, up to a limit of £50, for such requisites as the smallholder would not purchase in the ordinary course of his business.

(b) *Discussion societies*.—These are a new feature of county extension schemes. The first agricultural discussion society was founded in the North Riding of Yorkshire in 1920. The following description refers specially to Devonshire¹. Considerable progress has been made where such societies have become an important link of the agricultural extension work. The object is to promote interest in agricultural methods. Societies are formed usually by a single pioneer lecture, followed by discussion at a convenient centre where at least 50 agriculturists (farmers, landowners, farm workers, and others) can be persuaded to become active members. The officers of the society, in conjunction with the county agricultural organiser, arrange a programme of meetings to be held weekly or less frequently during the winter; practical demonstrations take place during the summer. It has been found advisable to establish a central society at a particularly good centre and to form smaller societies in surrounding districts, the members of which are invited to special meetings at the central society. Lectures are given by the county agricultural staff, by specialists, veterinary surgeons and practical farmers; it has been proved that the best discussions occur after lectures given by farmers. Experimental and demonstration plots are often laid down on the farms of members. The societies have greatly aided the Agricultural Education Department in Devonshire in getting into closer touch with the farmers. It is noticed that the majority of the members are above middle age, although young men almost invariably join as well. A list² of agricultural discussion societies to hand shows that such organisations now exist in at least eleven counties; members are sometimes specialists in a particular branch of agriculture, such as poultry. Membership mostly lies between 60 and 70. The list comprises 45 societies, of which not less than 17 with 1,200 members are in Devonshire and 8 with 400 members in Essex.

Experiments have also been made to use the rural secondary school as a centre for agricultural extension work. At a school in Alston a modest scheme of local lectures on farming subjects was prepared in 1913. The war created difficulties, but in 1919 the scheme was extended and lectures were organised during the winter sessions. These proved popular, the attendance was good, and discussions followed. Facilities were given to farmers to consult the lecturer on

¹ Summary from the *Report of the Intelligence Department of the Ministry of Agriculture, 1921-1924*, pp. 81-83.

² Kindly put at our disposal by Mr. D. B. Johnstone Wallace, M.Sc., N. D. D., Principal of the East Anglian Institute of Agriculture, and founder of the first agricultural discussion society.

problems which had arisen, and it became quite a common thing for lecturers to visit farms in the neighbourhood. During the summer, excursions were organised to places of interest to the farmers.

(c) *Agricultural shows*.—These are an old feature of English agricultural life, ranging from the smallest village show to the large national shows which attract overseas visitors. Some attempts have been made to make educational use of them by organising visits of school children to them. For many years it has been the practice to organise student competitions, especially judging competitions. These are also open to farmers, but so far only students in the agricultural schools have entered.

(d) *Women's rural institutes*.—The movement has grown enormously during and since the war, and contributes greatly to the extension of agricultural education among women. The Federation of Women's Rural Institutes has an agriculture and horticulture sub-committee, which arranges short courses of instruction in dairy and poultry work, plans Institute exhibitions at agricultural shows, and acts as clearing houses for all information of interest to Institute members on agricultural and horticultural subjects. Institutes are interested both in the occupational and in the home side of women's farm life. Important financial aid was given by the State during the first years of the movement.

(e) *Young farmers' clubs*.—These are clubs of girls and boys, comprising from ten to twenty children ranging from ten to eighteen years of age. They are generally founded on the initiative of a small advisory committee of experienced farmers including, if possible, a member of the county education staff. Periodical competitions with prizes and sales are arranged. The first clubs were founded in 1921 by voluntary effort. Supervision over the movement was accepted by the Ministry of Agriculture in 1924. An inspector was appointed early in 1925 to take charge of the scheme and through his efforts many clubs have been established.

	Number of		
	counties	clubs	members
1924 (December)	8	13	254
1925 " 	12	21	520
1926 " 	19	91	1,942
1927 (November)	19	85	2,232 (including 535 asso- ciate mem- bers)

The slight decrease in the number of clubs in 1927 arises from the policy of concentrating on a sound system of organisation to form the

basis of a permanent development rather than on any immediate expansion. In 1928 the Ministry, the Carnegie United Kingdom Trustees, and the National Council of Social Service (see below) agreed to co-operate to further the movement.

(f) *The rural community councils*, established largely through the encouragement of the Development Commission, have proved of great value in securing a sound basis of organisation for young farmers' club work. These councils have been formed in eighteen counties and co-ordinate the work of all organisations, both voluntary and official, for rural education, welfare, etc., in their county. The National Council of Social Service is a central body which, on the rural side, acts as a headquarters for all rural community councils and includes representatives of the Ministry of Agriculture and other public bodies.

Scholarships for sons and daughters of agricultural workers.—A feature of English education is the use of scholarships. All county councils give scholarships covering tuition and some maintenance which carry the most intelligent elementary school children into a secondary school. There are thereafter considerable, though unevenly distributed, endowments from the secondary schools to the Universities. The agricultural wage-paid classes have scarcely benefited by this system; no scholarships have been earmarked for rural districts, nor did the maintenance allowances of the county council scholarships cover the whole support of the child; they were therefore useless to the agricultural workers. In order to remedy this defect, one-eighth of the sum of £1,000,000 set aside for the encouragement of agriculture on the occasion of the repeal of the Corn Production Acts in 1921 was devoted to a special scheme of scholarships for the children of agricultural wage-paid workers. The scheme differs from the county council scholarship system in being directed not towards general, but towards vocational, education. A special feature is the system of successive scholarships, by means of which at least a chance is opened to the wage-paid worker's child to attain to the highest standard of expert knowledge.

The scheme is confined to the children of bona fide agricultural wage-paid workers or agricultural salaried employees (or smallholders whose means are comparable with those of agricultural wage-paid workers); to these persons themselves; further, to children of rural workers whose position is comparable to that of agricultural wage-paid workers (rural workers themselves are not eligible as such). "Smallholders" are defined as those farming land not exceeding £50 rental value per year. Three types of scholarship are given: (i) junior scholarships enable candidates to attend courses of from one to three (exceptionally four) terms at farm institutes; candidates must be sixteen years of age and, as a rule, have been engaged for at least a year in practical farming; (ii) extended junior scholarships allow not more than another year's tuition of the same kind to a student who has held a junior scholarship; (iii) senior scholarships enable candidates to take either a diploma course at an agricultural college, or a Degree course in the agricultural department of a University, or a course at a veterinary college. They usually cover two years' study, but can be extended to a third year. Candidates must be seventeen, or preferably eighteen, years of age, and must previously

have held a junior scholarship. The scholarships cover tuition and full maintenance fees, and the senior scholarships include £40 for outfit.

The scheme was in the first instance carried out for an experimental period of five years. In all 2,574 applications were received, of which 1,264 were admitted as fulfilling the conditions laid down; actually 612 candidates could receive scholarships, in other words, about half the admissible candidates could be satisfied. The scheme has since been renewed, and in 1927 120 junior, 10 extended junior, and 10 senior scholarships were offered. In 1926 42 candidates were children of agricultural workers, 6 were children of working farm bailiffs, 22 were children of other rural workers (harness-makers, gardeners, roadmen), and 25 candidates qualified on their own account as agricultural wage earners.

The provision of scholarships is finally completed by a small number of scholarships for advanced students who have taken a Degree or Diploma in agriculture which are offered by the Ministry of Agriculture or by that Ministry jointly with the Board of Agriculture for Scotland. Scholarships are either research scholarships of £200 a year tenable for three years, or two-year scholarships awarded to students who intend to become agricultural teachers or organisers, to enable them to broaden their knowledge and experience especially on the economic side. It is assumed that the children of agricultural wage earners might become eligible for such scholarships if they have already been holders of a junior and senior scholarship under the scheme described above.

Appendix : History of Agricultural Education

The history of the organisation of agricultural education in England dates from about 1890, although the Chair of Rural Economy at Oxford is antedated by nearly a century and two or three private or semi-private institutions had already come into being by that time. In 1889 an Act establishing the Board of Agriculture authorised the Board to inspect and aid any schools other than public elementary schools in which practical or scientific instruction in agriculture was given; for grants were limited to a sum of £5,000 a year for the whole of Great Britain. At that time the only facilities for higher agricultural education were provided by three agricultural colleges and the only encouragement given by the State to agricultural education was by means of grants given by the Science and Art Departments in respect of scholars who passed an examination in the principles of agriculture: all these examinations were unrelated to practical agriculture. The Board of Agriculture began its efforts to build up a suitable system of agricultural education in a very modest fashion. The money at its disposal was usually spent in making grants to existing institutions, such as dairy schools. In 1890 additional duties were imposed on beer and spirits, and it was decided to put the money into the local taxation account for distribution to the county councils, who were authorised to use it for technical, including agricultural, education. No obligation was placed on the councils, but some of the councils used it to establish local lectures, itinerant instruction, dairy schools, etc., as well as on grants to existing agricultural colleges.

The amounts thus applied by a county council varied very much, from £300 to £15,000. Subsequently the Board of Agriculture applied its funds principally in grants to institutions of a central character. Towards the end of the nineteenth century several new agricultural colleges were founded. In 1899 the Midlands Dairy Institute was founded, and a professorship of agriculture at Cambridge. Between 1900 and 1905 several institutions came into existence resembling the present farm institutes.

In 1908 a Commission was set up to enquire into the provision for scientific and technical instruction. Its report indicates that institutions for higher agricultural education were sufficient in number, but that better equipment and staff were required; facilities for agricultural instruction of a lower grade were stated to be unorganised and wholly inadequate; the Commission recommended the establishment during the next ten years of from 50 to 60 farm institutes providing winter courses for boys from seventeen to twenty years of age who had already gained some practical experience in agriculture. The establishment of the Development Commission with large sums at its disposal created an opportunity for carrying out these recommendations and enabled the Board of Agriculture to make grants to county councils of 75 per cent. of the capital cost of providing farm institutes, and up to 50 per cent. of the annual cost of maintaining them. Schemes were approved prior to the outbreak of the war, but in 1919 only four farm institutes were at work. After the war the whole cost of the grants in aid of agricultural education was transferred from the Development Fund to the parliamentary appropriation for the Ministry of Agriculture. It was only after the war that the farm institutes really developed. Most of the present extension work is also of recent date.

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Scotland

Authority and administration; organisation; extent of agricultural education.—There is no general law regulating the whole system of agricultural education, which has evolved gradually as part of the general educational system. Previous to 1912 agricultural education was in the hands of the Scottish Education Department. On the institution of the Board of Agriculture for Scotland in that year the care of agricultural education was transferred to that Board, and the developments that have taken place since have been due, mainly, to departmental action apart from legislation.

Towards the close of his elementary school career the Scottish child has some opportunity of obtaining simple agricultural instruction; his opportunities would be greatly developed if the scheme of continuation education embodied in the Education Act of 1918 could be put into force. Special features attach to the vocational agricultural education system. Three agricultural colleges divide up the country between them, and, though collaborating, are not united by common regulations; inside each district each college centralises all forms of such education, from the highest University Degree work to short extension courses. About 100 persons intending to become practical farmers may be counted as finishing a college course every year. This figure is very low compared with the 31,500 farmers and 15,000 crofters (smallholders) who existed at the date of the agricultural census of 1921; on the other hand, the weekly agricultural classes, which comprise about a dozen lessons each, may be considered as a very valuable form of extension work, and these courses are yearly followed by about 8,000 persons.

Elementary education in rural districts: secondary education.—According to the Education (Scotland) Act, 1918, the education of children must continue till they have attained the age of fifteen years. The junior (seven-nine years) and the senior (nine-twelve years) divisions of elementary schools give instruction in nature study. Direct vocational training is not considered to be a matter for elementary schools in Scotland, but the courses of instructions in the advanced classes (twelve-fifteen years) of elementary schools may be adapted to suit the probable practical requirements of the pupils after school life. A Circular of 16 February 1903 from the Scottish Education Department had recommended something of this idea for the supplementary classes which preceded the institution of the advanced classes and were the final educational effort of all children who did not pass into the secondary school system, etc. In a good many schools the supplementary courses did not come up to expectation, but examples could be found—especially of rural schools—where an attempt was made to give the pupils some notes on rural science, illustrated by and applied to practical operations, or where practical training had been extended to comprise gardening, agriculture and poultry-keeping so as to give the instruction the character of a rural course; such schools, however, were exceptions.

The advanced divisions have now both two-year and three-year courses including practical subjects. The Education Code of 1923 mentions as practical subjects for a two years' course, gardening, and for a three years' course, gardening, agriculture, dairying; by far the

larger number of children are instructed in gardening. If a school does not possess the necessary equipment of its own for practical training, it sends the senior pupils to a neighbouring school.

In a few secondary schools, under the Secondary Schools Regulations, practical instruction in the same subjects is given.

COURSES IN THE YEAR ENDING 31 JULY 1926

	Gardening	Agriculture	Dairying	Poultry keeping
Number of elementary schools.	633	23	2	7
Number of pupils.....	7,611	473	12	155
Number of secondary schools..	18	5	1	—
Number of pupils.....	490	139	18	—

Continuation Education.—Continuation education is voluntary; legislation tending to introduce compulsory attendance has not yet been enforced. A few rural districts have special agricultural classes held in conjunction with the classes in general subjects. A Memorandum dated 29 September 1913 deals with courses of instruction in rural continuation classes, the guiding principle of which is to continue on broad lines the instruction given in the supplementary classes of rural schools and to lead the pupils up to the more specialised courses in agricultural subjects which exist. The courses are intended to cover three years and a model curriculum for boys of 4-4½ hours a week includes about an equal amount of instruction in elementary agricultural science, general subjects or handicrafts, and book-keeping or surveying.

Vocational Agricultural Education

Agricultural Colleges

The special feature of the Scottish system is that all vocational agricultural education is concentrated round three agricultural colleges, each of which is connected with a University, namely, Aberdeen, Edinburgh, and Glasgow. All grades of agricultural education are given at or in connection with these colleges, from evening classes and short courses to degree courses lasting up to four years.

Evening classes are held once a week during 20 weeks, and each series is devoted either to agriculture in general or to a specific subject; these classes are perhaps to be classed as extension work. The lowest grade of vocational agricultural education would in that case be constituted by the *farmers' courses*. At two colleges no special conditions of admission have to be fulfilled for these, but the West of Scotland College demands an advanced certificate of elementary education. These courses last either one winter session or two winter terms of four to five weeks' duration each. The instruction is specially intended for practical farmers, but many students working to become practical farmers follow instead the diploma courses.

The *diploma courses* lead either to a University or a college diploma, or to the National Diploma of Agriculture. They last two to three winters, the intervening summers being usually spent in farming. The *degree courses*, which are taken at the Universities, are normally intended for future teachers in agriculture, and the honours course for specialists in agricultural subjects. The degree course lasts three years; the degree course with honours, four years. To follow both the degree and the diploma courses the students must hold entrance certificates to a University and be able to prove that they have had one year's farming experience. All courses are open to women as well as to men.

STUDENTS ATTENDING AGRICULTURAL COLLEGES IN 1917

	Aberdeen, North of Scotland	Edinburgh, East of Scotland	Glasgow, West of Scotland
Evening classes....	—	161	123
Farmers' courses...	14	19	20
Diploma courses...	16	55	69
Degree courses.....	18	32	24

In 1926-1927 24 students took agricultural degrees and 47 diplomas. Some of the degree students and the majority of the diploma students return to agriculture.

Special Institutions

(a) *A special dairy school* is affiliated to the West of Scotland College. Diplomas can be taken in dairying or in dairying and poultry-keeping. Shorter courses, of which the shortest is four weeks, can also be followed, as well as courses for milk recorders.

(b) *Theoretical diploma courses in dairying* are also given at the two other colleges. At the North of Scotland College a three months' course in animal husbandry exists; at the West of Scotland College eight to ten weeks' certificate courses in bee-keeping.

Agricultural Extension Education

Extension work also is centralised at the agricultural colleges; at two of the colleges the principal of the college is at the same time head of the extension work; at the North of Scotland College there is a special director of county work. The extension staff at each college varies from 15 to 20 county and assistant county organisers, and from 6 to 15 instructresses. County advisory committees exist for the purpose of co-ordinating the educational work of the college organiser in each county with the agricultural instruction provided by educational authorities in rural schools and continuation classes.

Apart from the short courses and evening classes given at the colleges themselves, extension work includes:

(a) *Systematic classes*, which correspond to the evening lectures

at the colleges (see above), but are given at various centres in the counties. Classes meet once a week for at least 16 weeks during the winter months, usually in the evenings, from 1½ hours to 2 hours; when possible, one-third of the time is devoted to work of a practical nature, and supplemented by visits to farms. Certificates are awarded. These courses are provided in such subjects as agriculture, land surveying, farm book-keeping and farm business, poultry-keeping, dairying, bee-keeping, and horticulture. The course in agriculture covers two winters.

On an average a systematic course consists of 11 meetings. If we are to assume that attendance has been regular, the minimum number of pupils has been 7,870 at these systematic courses.

(b) *Short courses and single lectures* are given in various agricultural subjects such as farm crops, manures, foods, poultry-keeping, dairying, bee-keeping and horticulture.

(c) *Experiments and demonstrations* are arranged in each county district under the agricultural organiser, and field meetings of farmers in connection with these. When an experiment has been completed, the main results are immediately published in the local newspapers; a detailed report appears later in bulletin form. Demonstrations are also arranged by the instructresses in dairying and poultry-keeping, bee-keeping, and horticulture.

EXTENSION WORK IN 1917

	Colleges of Agriculture			Total
	Aberdeen, North of Scotland	Edinburgh, East of Scotland	Glasgow, West of Scotland	
Systematic courses :				
Number of centres	171	137	87	395
Number of meetings	2,382	1,107	1,074	4,563
Number of attendances	37,226	16,047	33,319	86,582
Lectures and demonstrations :				
Number of centres	610	97	245	952
Number of meetings	1,408	137	793	2,338
Number of attendances	38,243	4,955	29,579	72,777
Experiments :				
Number of centres	379	89	150	618
Number of experiments	656	110	68	834
Visits to farms and crofts	14,270	3,415	11,579	29,264

(d) *Instruction for smallholders.*—The Edinburgh College supervises eight holdings for the instruction of smallholders. The North of Scotland College has a special scheme of instruction to meet the requirements of the crofting districts in Scotland, where farming is of a lower standard than elsewhere. The instruction is given with the help of systematic classes, short courses, demonstrations, visits to the crofts, etc., but the instruction is less of a technical and more of a practical nature than for the better farmed districts. The College possesses a farm to be used for experimental and demonstration purposes in the interest mainly of crofters and smallholders. Extension work comprises also advice and assistance to farmers, lectures at continuation classes, assistance to authorities, working under the Board of Education, and propaganda for Board of Agriculture schemes such as the Pure Breeds of Poultry scheme, etc. In the crofting districts visits are made periodically to the various townships and as many visits as possible to individual crofts. Instructresses in dairying and poultry-keeping also visit individual farms. No fees are charged for attendance at extension classes and lectures, nor for advisory work.

(e) *Young farmers' clubs* were founded for the first time in 1923, mainly through the instrumentality of local organisers. The number is as yet low, but other associations and societies with somewhat similar objects are in existence in various parts of the country.

(f) *Lectures* on agriculture and allied subjects are from time to time given under the auspices of the Workers' Education Association.

(g) *Women's rural institutes* are also widespread and valuable adjuncts to agricultural education (see section on England and Wales).

Scholarships for the Sons and Daughters of Agricultural Workers.—A scheme is in operation, which is substantially the same as the scheme described in the section of the present Report for England and Wales; to this the reader is referred. The scheme in Scotland is organised to fit into the vocational agricultural education system there. In 1927 there were 134 applicants for scholarships, and 24 scholarships were awarded. Of the successful applicants 4 were the children of smallholders, 4 of gamekeepers, 1 of an estate carter, 1 of a housekeeper to a crofter, and 14 were themselves agricultural workers.

Appendix : History of Agricultural Education

During the eighteenth century various organised efforts were carried out by societies to encourage improvement of agriculture in Scotland. In 1788 the first course of lectures on agriculture was given at Edinburgh University, and in 1790 the first Chair of Agriculture was established. In the next 35 years the number of students following the courses varied from 30 to 78. In 1840 a lectureship was opened in Aberdeen. In 1856 the Highland and Agricultural Society petitioned for a supplementary charter to enable them to direct and promote the education of young agriculturists by drafting a curriculum of study and holding examinations thereon and awarding diplomas; the first examinations were held in 1858. In 1898 the Society agreed with the Royal Agricultural Society of England to combine their examinations and diplomas. The new certificate was entitled "The National

Diploma of Agriculture". Direct teaching was still lacking. From 1860 onwards a certain amount of general and applied science instruction had been given in the schools under the stimulus of grants made by the Science and Art Department, South Kensington, but not until 1876 was a special scheme of agricultural education introduced. It embraced three stages: that of the elementary school and of the evening school—in both cases instruction was given by the elementary teacher, agriculture being included in the last of the so-called "specific subjects" for which special grants could be earned by the school—and that of special courses of a more advanced type. Students attended a course of at least 20 lectures and sat for examination for certificates in three groups—elementary, advanced and honours.

The result of the scheme was that some agricultural training of elementary teachers was felt to be needed. From 1877 onwards agricultural courses at Aberdeen were held for teachers in rural schools, and shortly afterwards students at the Aberdeen Training College for Teachers were allowed to include agriculture and chemistry in their curriculum. Later, classes for schoolmasters were provided in Edinburgh in 1880 and at Glasgow in the winter session 1889-1890. In 1887 agricultural education was definitely established at a technical college in Glasgow. At Edinburgh the holder of the Chair of Agriculture established a course of agricultural science in 1885, and an evening class in 1888. The Board of Agriculture for Great Britain, established in 1889, gave official recognition to the three teaching centres in Edinburgh, Aberdeen, and Glasgow. In 1890, by the passing of the Local Taxation (Customs and Excise) Act, the local authorities obtained funds for educational purposes. The policy of the Board of Agriculture was to encourage the development of teaching centres which would serve wide areas and around which the educational machinery would be organised so that in each district there should grow up a graduated and complete organisation of agricultural instruction; in harmony with this idea shorter agricultural courses and extension work began to develop at the three training centres.

As far back as 1860 instruction in cheese-making had been given in Ayrshire, which was originally peripatetic, but in 1889 the Dairy Institute of Kilmarnock was founded. In 1896 the powers of the Scottish Education Department were extended to include agricultural education; at that date the framework of Scottish agricultural education existed already as it is to-day. During the period 1899 to 1904 the three training centres developed into fully incorporated agricultural colleges and the Dairy School at Kilmarnock was recognised as a national dairy school and associated with the West of Scotland College. In 1912 agricultural education was transferred to the new Board of Agriculture for Scotland.

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Northern Ireland

Authority and administration; organisation.—The Agricultural and Technical Instruction (Ireland) Act, 1899, established the Department of Agriculture and Other Industries and Technical Instruction, which became responsible for the control of agricultural education in Ireland. To assist this Department a Council of Agriculture, an Agricultural Board, and a Board of Technical Instruction were set up, and the local county councils obtained the right to appoint county committees for the purpose of the Act, which in the rural districts became the county council committees of agriculture.

The Government of Ireland Act, 1920, transferred agricultural education so far as Northern Ireland was concerned to the Ministry of Agriculture for Northern Ireland, which, broadly speaking, continued the policy of agricultural education hitherto followed.

Elementary education in rural districts.—Attendance at elementary schools is compulsory; no provision is made for vocational agricultural education.

Continuance education.—Attendance at continuation schools is voluntary, but here also no vocational agricultural instruction is given. However, the Education Act, Northern Ireland, 1923, section 10, states that it shall be the duty of an education authority to include in the course of education practical instruction suitable to the ages and requirements of the children.

Vocational Agricultural Education

Lower-Grade Agricultural Schools

Winter agricultural classes.—These are arranged by the county committees of agriculture. Preference is given to thickly populated tillage districts; unless in exceptional circumstances centres in which agricultural classes have been held in recent years are not selected, and under no circumstances must a class be held at the same centre for three consecutive years.

The classes are confined to young men, as a rule over sixteen years of age, who are engaged in farm work in the county. Classes must comprise at least 10, and not more than 30, students, and must be held on not more than three, and not less than two, consecutive days

weekly, morning and afternoon, during a period not exceeding 20 weeks and beginning not earlier than October and ending not later than March. The curriculum includes agricultural subjects and elementary science explanatory of the principles underlying ordinary farm practice, the aim being to impart such knowledge as is capable of direct application to farm work. The lessons are as far as possible illustrated by practical demonstration. Certificates are given. Instruction is free, but students must provide stationary; students who reside more than three miles from the class centre are allowed railway fare. The number of classes and number of students is steadily growing. In 1925-1926 classes were held at 20 centres and attended by 387 students, of whom 165 qualified for certificates.

Intermediate Agricultural Schools

Greenmount Agricultural and Horticultural College.—The course lasts about ten months. Students must be over sixteen years of age and must pass a simple entrance examination; preference is given to boys over seventeen years of age, and to those who have attended a winter agricultural class or taken advantage of agricultural extension courses. The course is intended to give students a sound knowledge of agriculture, horticulture, plant diseases, etc., useful for their future careers as farmers. Both theoretical and practical instruction is given, and economic subjects are included. There is an examination on which certificates are awarded. The school is a boarding school, the fees being £65 per course, but nearly all students are holders of scholarships which cover all expenses. For the 1925-1926 course 34 students out of 36 were scholarship holders and 2 were fee-paying students; 30 followed the agricultural course and 6 the horticultural course.

Higher Agricultural Education

The Agricultural Faculty established at the Queen's University of Belfast at the end of 1924 offers a four-year advanced scientific course in agriculture, which enables successful students to take up research work or to fill posts as agricultural teachers or lecturers. Students must be seventeen years of age and must matriculate. In 1927 there were 22 students. University scholarships, up to the value of £100 per annum, are available, and most students hold these or some other scholarship. To obtain a University scholarship the student must prove that he has practical experience of agriculture as carried out in Northern Ireland and pass an examination of a high standard. The student must guarantee that he will refund the full amount of his scholarship if, during a period of two years following the conclusion of his scholarship course, he does not take up any research or teaching appointment offered him by the Ministry of Agriculture or a similar position or engage himself in farming in Northern Ireland. In 1926, 14 students were holding such scholarships, two students holding scholarships from a private fund, and only three students were fee-paying scholars. Scholarships are not open to women.

Special Institutions

While agricultural instruction proper is reserved to youths, there are two special schools open only to girls.

(a) *The Ulster Dairy School* gives four courses in butter-making, poultry-keeping, and rural domestic economy. In 1925-1926 108 girls received instruction at this school, 73 concluded their training, 31 having been in residence for one term, 4 for two terms, 24 for three terms, and 14 for four or more terms. A number of scholarships are available.

(b) *The North West Agricultural School* provides training in poultry-keeping, butter-making, and rural domestic economy. It has accommodation for 24 pupils. Four courses, each of about 10½ weeks' duration, are held annually. Scholarships are provided in connection with each course by all county committees of agriculture. The courses usually comprise the maximum number of pupils.

For other special courses, see next section.

Agricultural Extension Education

The Minister of Agriculture is prepared to approve the appointment of at least one instructor in agriculture, one instructress in butter-making and home-cheese-making, and one instructress in poultry-keeping by each county committee. The agricultural instructor gives advice to farmers, visits farms to encourage interest in the Ministry's seed-testing and improvement work, and gives lectures and demonstrations. An instructor can also teach winter agricultural classes, but not on more than four days a week. In 1925-1926 there were ten instructors employed by the six counties. They visited 4,200 farmers, gave 56 lectures, attended by 2,250 persons, carried out 164 field experiments, and laid down 700 demonstration plots. Two instructors and ten overseers have been appointed under the "Special Development Scheme" to encourage agricultural progress in backward districts, for which a special grant was voted in 1923; overseers assist the agricultural instructors. During 1925-1926 the ten overseers visited 8,100 farms and laid down 1,700 demonstration plots.

An instructress in poultry-keeping has to devote her whole time to promoting improvement in poultry-keeping, by means of classes, lectures, etc. Classes last not more than 20, and not less than 10, days. At least 10, and not more than 18, pupils must be enrolled; pupils must be fifteen years of age. In 1925-1926 ten instructresses were engaged, of whom seven were also employed under the scheme of instruction in butter-making. They gave 11 lectures, paid 5,300 visits, gave 18 courses of instruction to 315 pupils. For butter-making classes there must be not less than 6 and not more than 12 pupils; in 1925-1926 the seven instructresses gave 3 lectures, visited 54 private dairies, and gave 10 courses of instruction to 115 pupils.

Various agricultural societies arrange occasional lectures and agricultural shows, which are educational in character and at which educational exhibits are included; they give the Ministry of Agriculture considerable assistance by bringing vocational courses to the notice of members of their branches.

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IRISH FREE STATE

Authority and administration; organisation; extent of agricultural education.—The Agricultural and Technical Instruction (Ireland) Act, 1899, established the Department of Agriculture and Other Industries and Technical Instruction, which became responsible for the control of agricultural education in Ireland. To assist this Department a Council of Agriculture, an Agricultural Board and a Board of Technical Instruction were set up and the local county councils obtained the right to appoint committees for the purpose of the Act, which in the rural districts became the county council committees of agriculture. These arrangements remained unaltered after the constitution of the Irish Free State.

The elementary school does not include agriculture in its curriculum. The lowest kind of agricultural instruction is given in winter classes, at various intermediate schools attached to agricultural stations and in private schools, in some of which it is combined with general secondary education. University instruction is exclusively scientific and theoretical. In 1927-1928 the winter classes trained 1,438 pupils; further, 160 pupils who had been attending intermediate schools took up farming. Ninety-three per cent. of Irish holdings have less than 100 acres of land; the winter classes are the only means of agricultural education open to most of the occupiers. It has been calculated that if all farmers cultivating over 30 acres were benefiting by some form of agricultural education the number of pupils would be 4,427 each year: if in addition farmers cultivating from 15 to 30 acres were so benefiting, the number would be 7,575 or nearly five times what it is now. It may be added that only 75 to 80 per cent. of the capacity of the existing schools is used.

Elementary education in rural districts.—As far back as 1837, provision was made for the teaching of agriculture as a special feature in Irish elementary schools. Further developments in this direction took place year by year up to 1875, when there were in Ireland 30 model agricultural schools, 25 school gardens, and 175 elementary schools with small farms attached. After 1875 the practical teaching of agriculture and horticulture was gradually discontinued, and when the Department of Agriculture was established in 1900 it entirely disappeared, as it was considered to be of doubtful educational advantage to teach agriculture as an applied or vocational subject to pupils of elementary school age. In the National Programme of Primary Instruction adopted in 1922, "nature study" was eliminated as a formal obligatory subject, but was retained in the curriculum as an "additional" subject. "Rural science and school gardening" was also included in the case of properly equipped schools with gardens attached. Emphasis was laid on the desirability, in selecting literature for reading in the schools, of giving an important place to books which tend to develop the pupils' interest in the land, in the pleasures of country life, in the production of crops, and in the rearing of herds. In 1926, rural science, or nature study, was included in the programme of elementary schools as an obligatory subject, except in certain classes of schools where the teaching of these subjects is not practicable. The term "rural science" is applied to a prescribed course in boys' schools, or

mixed schools under a master, where there is a school plot available for practical demonstration by the pupils. The term "nature study" is applied to a course for boys where no school plot is available, and also to a course for girls or mixed schools under a mistress where no school plot is required. The object of these courses is purely educational. They are not intended to serve a vocational purpose, but it is considered that they are of great indirect utility in making the children favourably disposed towards, and in preparing them for, agriculture—the natural vocation of a large proportion of them—and in interesting all of them in the characteristics and resources of the country.

In 1926-1927 rural science was taught in approximately 400 schools, the nature study course for boys' and mixed schools under a master in about 500 schools, and the nature study course for girls' schools and mixed schools under a mistress in about 1,100 schools. At present, one or other of the courses is being taught in about 3,000 schools, and this number is being added to at the rate of about 250 schools each year.

Secondary education.—Rural science can be taken as a subject in certain courses. Some five institutions conducted by religious denominations which provide general education of secondary grade have also courses with vocational agricultural instruction; two of these colleges receive grants from the State. These courses are mainly intended to afford sons of farmers a training that will subsequently be of use for them in managing their own farms, but also to qualify them to proceed to institutes with higher agricultural instruction. Boys must be fifteen years of age. The course lasts two years. In 1926-1927 there were 34 pupils at the two colleges.

Vocational Agricultural Education

Lower-Grade Agricultural Schools

Winter classes are held by the county instructors, and are intended for sons of farmers, who could not be expected to send their sons for a year or two to a residential agricultural school. They are held on two days at least in each week during the winter months in all counties. Courses are held: (a) in the mornings and afternoons for at least four hours, (b) in the afternoons for at least three hours, and (c) as night classes of at least two hours' duration, the latter course principally for working farmers. To be eligible for grants a course (a) or (b) must comprise at least 84 hours' instruction and a course (c) at least 30. The instruction given is eminently practical, e.g. relating to the nature of soils, the use and valuation of manure and feeding stuffs, the cultivation of crops, the keeping of simple farm accounts. The number of centres and the attendance is constantly increasing. In 1927-1928 there were 73 courses attended by 1,438 pupils. Scholarships, financed partly by the State and partly by the county committees, tenable at agricultural schools, are given for competition among the pupils at these courses.

Intermediate Agricultural Schools

(a) *Agricultural stations* had as primary object to provide for selection and distribution of the different breeds of live-stock and for other

schemes, but from the outset provision was also made for courses of agricultural training for farmers' sons. The course lasts 11 months and is highly practical. Pupils are required to take part in all field and farmyard operations; class-room instruction in general subjects and in elementary science bearing upon agriculture is also given. Pupils pay fees proportionate to the valuation of the holdings from which they come. There are three agricultural stations; in 1926-1927 the total number of pupils was 43, of whom 24 held scholarships.

(b) *Private college*.—One private college managed by a religious denomination gives agricultural education only; it receives State grants. Pupils must be sixteen years of age. The course lasts ten months. In addition to class-room instruction, the pupils receive practical training on the college farm. In 1926-1927 the number of resident pupils was 22.

Higher Agricultural Education

A Faculty of Agriculture was established at University College, Dublin, by an Act of 17 July 1926; at the same time the College of Science, which already had a Faculty of Agriculture, and Albert Agricultural College were transferred to it. The College of Science, in collaboration with Albert Agricultural College, had previous to 1926 a four-year course, attended in 1926-1927 by 20 students, of whom 16 held scholarships. Albert College also had a ten months' course intermediate between the College course and the courses at the agricultural stations; in 1926-1927 this was attended by 16 students, of whom 7 held scholarships. The College had also a course the equivalent of those given at the agricultural stations and attended in 1926-1927 by 17 pupils.

A Professorship of Agriculture is established at University College, Cork, and a course in Agricultural Science is given at University College, Galway. All the Colleges mentioned are constituent colleges of the National University of Ireland. The special agricultural scholarship system runs concurrently with the general scholarship system of the counties, of which students can also take advantage.

Special Institutions

The Munster Day School and Agricultural Institute, Cork.—Apart from the University colleges, this is the only agricultural school to which women are admitted. Students who desire to improve their knowledge of dairying, poultry-keeping, and domestic work or wish to train to become butter-makers in creameries or large dairy farms, are admitted. The school has two terms annually. On the result of the examinations held at the conclusion of each session, a limited number of second-term students are given the option of continuing studies at the Institute with a view to qualifying as instructors and teachers. The school has accommodation for 53 pupils, but the number of applicants is always much larger.

Agricultural Extension Education

Extension work is administered through the county council committees of agriculture or by the Department of Agriculture directly. One

or more county instructors in agriculture, butter-making and cheese-making, poultry-keeping, horticulture, and bee-keeping may be appointed. Instructors in poultry-keeping and butter-making arrange classes in these subjects for farmers' daughters. In 1926-1927 poultry-keeping classes were held at 45 centres attended by 635 pupils, and butter-making classes at 101 centres attended by 934 pupils. Instructors in agriculture organise and conduct winter agricultural classes (see above), visit and advise farms, and conduct experiments and demonstrations, and give lectures.

1926-1927

	Number in			
	agriculture	home dairying	poultry	horticulture and bee-keeping
County instructors	39	38 ¹	36 ²	37
Lectures delivered.....	259	658	34 ³	62
Attendance	10,861	21,718	3,316	29,958
Farm visits	21,655	26,613	435 ³	1,524
Demonstrations	505	—	—	312
Field experiments.....	894	—	—	—
Live-stock experiments ..	12	—	—	—

¹ 32 of these instructors also gave instruction in poultry-keeping.

² 32 of these instructors also gave instruction in butter-making.

³ Figures for 1925-1926.

Itinerant instruction schemes administered by the Department of Agriculture directly have included a scheme of instruction in egg-testing, grading, and packing, under which in 1926-1927 14 inspectors paid 16,560 visits to producers and merchants; also a scheme of instruction in flax cultivation, under which in 1926-1927 eight instructors carried out 5,040 visits and demonstrations and laid down 50 experimental plots; finally, a scheme of agricultural instruction in congested districts. Under this scheme instruction suitable to the requirements of smallholders in the congested districts and to migrants on settled estates, i.e. on areas which have been divided into smallholdings for occupation by farmers transferred from congested districts, is given by Department of Agriculture overseers and assistant agricultural overseers at suitable centres; the assistant overseers visit smallholders on their holdings; model plots are cultivated under the overseers' supervision. In 1926-1927, 4 overseers, 52 assistant overseers, and 6 temporary demonstrators in potato-spraying were employed and the number of demonstration plots laid down was 5,832.

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CANADA

Authority and administration; organisation; extent of agricultural education.—No general law regulates the whole system of agricultural education in Canada; such education is a matter for the single Provinces. However, in 1913 a Federal Act on agricultural instruction was passed, which for ten years put one million dollars per year at the disposal of the Provinces. This Act was passed after an exhaustive study of European methods, and its object was to stimulate the development of agricultural education by supplying the Provincial Governments with larger funds than they would naturally allocate. A large part of the moneys were expended on agricultural extension education, the permanent progress of which has thus been assured.

Except for some communication of results which is undertaken from the Federal experimental farms created under an Act of 1886 and placed under the Dominion Department of Agriculture, agricultural education is administered exclusively by the Provincial Departments of Agriculture, though where it is obviously closely linked up with general education arrangements it can come under the Provincial Departments of Education. It should be noted that this is sometimes the case with the organisation of boys' and girls' clubs.

The broad lines of the agricultural education system are nearly the same throughout Canada, though it has its peculiar feature in each Province. Some notions of agriculture are, as a rule, taught in the elementary schools, and agriculture is at least an optional subject in many secondary schools. But the centre of effort is the Provincial Agricultural College, and the feature of the national system is the attention given to extension methods which are largely in the hands of local agricultural "representatives" employed by the Provincial Departments of Agriculture to work in close co-operation with the Colleges and to advise the farmers of the districts. As a general rule, instruction at the College or at the intermediate agricultural school is only given during the winter months, the summer being left free for farm work; the very common practice for agricultural students to work on a farm on their own initiative during the summer months needs to be borne in mind. Moreover, it is usual to require at least one year's practical experience before admittance. In 1923-1924 there existed six Agricultural Faculties attended by 526 students, and six Agricultural Colleges attended by 845 students, actually ten institutions (the same institution being both Faculty and College in two cases), attended by 1,214 students, of whom 14 were women. These figures, however, only include students following the longer courses at the Colleges; the total enrolment at the six Agricultural

Colleges in 1924 was 2,343 men and 1,117 women (the latter mostly following domestic science courses).

In the following notes the agricultural education system in the six larger Provinces is reviewed.

Elementary education in rural districts; secondary education.—In *Alberta, Manitoba, Quebec, and Saskatchewan* definite agricultural teaching is given in the elementary school, in *Alberta* and *Saskatchewan* only in the highest grades of such schools, but in *Quebec* during the whole school period; in *Manitoba* the teaching appears to take the form rather of home projects (i.e. tasks) of a practical nature and of special instruction on these. The purpose of such teaching is defined, in *Alberta*, as to give the pupils an understanding of the fundamental principles underlying the occupation of farming, and to teach the natural laws underlying the production of plant and animal crops. The course is intended to present these principles in an effective manner and to apply them in practical demonstrations such as home projects, school gardens, identification and care of plants, milk testing, seed judging, and other exercises which are adapted to use in elementary schools. The spirit of the course is to enlarge the vision by actual contact with the facts and practices of farm life, and to place the pupils in a position to appreciate the conditions of rural life, its problems, and the importance of the Canadian farmer. In *Quebec* this instruction is given with the special object of inculcating in the minds of the children firm convictions as to the importance and nobility of agriculture, and to causing them to love that profession. This is the principal object. As a secondary object this instruction permits farmer's sons to acquire elementary notions of agriculture which put them in a position to improve themselves later on by the study and practice of their profession. In *Saskatchewan* it is interesting to note that the same course is used in rural and *urban* schools, but that teachers are trained to make the fullest use of environment in the work of the school and this ensures a variation between city and country. In *Ontario* liberal grants are being given to stimulate the teaching of agriculture in elementary schools. The teaching in all five Provinces appears to be closely related to the needs of Canadian agriculture. Teaching in *British Columbia* appears to be very much on the same lines, but in answering the International Labour Office Questionnaire the Government of this Province deprecated the idea that the agricultural teaching in its schools was intended to be vocational.

In secondary or "high" schools and in continuation schools courses in agriculture are encouraged as an optional subject in all six Provinces. In *British Columbia* the courses are described as broadly educational, but not lacking in vocational values; in *Ontario* they are described as comprehensive; it is stated that in the latter Province the number of pupils choosing these courses is low.

Vocational Agriculture Education

Agricultural Schools and Colleges

As already stated the Agricultural College (in *Quebec* more than one institution) is the centre of all agricultural educational effort in

each Province. The Ontario College of Agriculture, which was founded in 1874, is the oldest of these. Approximately 20,000 students of both sexes had registered for all courses between the year of its foundation and 1919; between 80 and 90 per cent. of students on leaving engage in the occupation of farming. All the Provincial Colleges give, in the first place, degree courses lasting three or four years; such courses presuppose a matriculation standard of general education before entering; in Quebec the degree course is combined with practical instruction, in the other Provinces it is more or less assumed that students have opportunities of practice. In addition, most of the Colleges also offer a shorter diploma or certificate course, which varies from two to three years according to the College; or students may study for only one winter; in Alberta, however, this form of teaching is given in separate farm schools of an intermediate grade, of which there were three in 1924 (six in 1919); most of the students preparing for the degree course at the Alberta College of Agriculture have been to one of these schools.

Finally, all Colleges give short courses, varying from one week to two months. These courses are often on special subjects, e.g. animal husbandry, poultry, or bee-keeping.

Agricultural Extension Education

Great attention is paid to agricultural extension teaching. *Ontario* was the first Province to establish local agricultural "representatives" in charge of a special office; a representative is an agricultural adviser and teacher. The Province has now 51 offices of this kind. *Quebec* possesses a well-developed system of "district agriculturists"; in 1921 practically all counties were provided with agriculturists, and 20 agriculturists had secretaries at their disposal; during 1920-1921, 2,501 lectures and 4,179 demonstrations were given, 273 field demonstrations, 253 school gardens, 25,000 home gardens, 107 school fairs were organised and supervised and 38,000 visits paid to farms. *Alberta*, *British Columbia*, and *Saskatchewan* have now made similar arrangements; in *Manitoba* an extension service of this kind was created in 1915, but discontinued in 1923; local organisation work now depends on voluntary assistance only.

The work done by extension staff is partly administrative. They largely devote themselves to assisting in the creation of agricultural technical associations such as cow-testing associations, to encouraging the improvement of field crops and of breeds of stock, to experimental and demonstration work. As examples of their educational activity proper the following may be mentioned:

Short courses of two to three days' duration are mostly arranged in the form of "farmers' institutes". A farmers' institute is a meeting lasting a few days established either by a local agricultural association or by the extension staff; instruction is given, afternoon and evening, on agricultural subjects. These institutes have often been the starting point for permanent agricultural associations. Short courses may also be arranged outside the farmers' institutes. In the winter of 1923-1924 22 short courses in animal and field husbandry were organised in *Manitoba* and attended by 865 farmers; in the same Province community institute meetings are held in every hamlet,

while special efforts are made to reach those living in newly opened up districts; during the year 1920 318 meetings of this kind were held with a total attendance of 36,000. In *British Columbia* short courses in the form of farmers' institutes are provided by the instructors of the Department of Agriculture; courses of not less than four days' duration are provided by the Agricultural College upon application from the districts. In *Saskatchewan* the Agricultural College arranges short courses of two to four days' duration; these courses and other educational meetings arranged by the extension department were in 1923-1924 attended by over 27,000 people.

Railway demonstration trains are noted both in *Alberta* and *Saskatchewan*. The trains are accompanied by the staff of the Department of Agriculture, who give lectures at stated periods each day. In *Saskatchewan* the usual period of operation is five weeks in the course of the year. The trains make two stops per day and the total number of persons reached by one of these trains during a season averages over 30,000.

Farm boys' camps are arranged in *Saskatchewan*, at the agricultural fairs at Regina and Saskatoon. Boys between fourteen and seventeen years of age attend the camp in teams of five accompanied by an adult supervisor. At the camp at Regina only boys who have not previously attended a camp are admitted. The main educational features in the programme are lectures and demonstrations in judging of horses, cattle and pigs. At Saskatoon only boys who have attended the camp at Regina are admitted; the only stock judging is in sheep. Lectures are given on field husbandry and the boys judge grain and identify crops, weeds, and weeds seeds. In this way the camps supplement each other. Each camp lasts four days.

School fairs are a very important part of the activity of agricultural extension staff. They supplement both the work done by means of school gardens at elementary schools and of the boys' and girls' clubs. In *Ontario* 546 fairs were held in 1927; 4,715 schools and 139,000 children took part; in *Alberta* 130 fairs, in which 1,500 schools took part, were organised in 1922; in this Province the fairs are usually held at the schools of agriculture. *Boys' and girls' clubs* are also widespread and organised by the agricultural representatives, sometimes in collaboration with the Department of Education (*Manitoba* and *Saskatchewan*).

The various agricultural associations, the women's institutes, etc., junior farmers' associations, are also active in agricultural education work in Canada. Particular interest attaches to *women's institutes*, as it was in Canada that this particular form of the farm women's movement originated and afterwards spread to England and to the United States. It has been stated that "the spirit behind the movement is that of technical agricultural education interpreted in terms of practical social values". The membership of the institutes is very large, and support is given by the Provincial Governments. The institutes are an integral part of Canadian rural life and contribute materially to raising the general educational standards of the countryside.

The Dominion maintains a system of experimental farms created under an Act of 1886; in addition, a system of illustration stations has been established. Each illustration station is a centre for the

growing and distribution of high-grade seed of new and improved varieties and serves also to convey to farmers in remote districts the results of the experimental and research work carried out on the experimental farms. The illustration stations are commercially run farms, and are an important additional link, not usually found in other countries, in the process of conveying the latest results of research to the farmer. In 1927 the number of Dominion experimental farms was 26 and of illustration stations 149.

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SOUTH AFRICA

Authority and administration; organisation.—There is no general or special legislation regulating the system of agricultural education in the Union of South Africa. Elementary and secondary education is controlled by the four Provincial Administrations and advanced education by the central Government. Any vocational agricultural education given in the Provinces comes under general education laws; in so far as the central Government is concerned, such education is regulated by the Department of Agriculture.

Elementary education in rural districts; secondary education.—Not a great deal has been done in the Union up to the present in providing vocational agricultural education of an elementary character, but careful consideration is being given to the whole subject. A conference between the Agricultural Department and University representatives issued a report in 1922. The report states that "although it was a recognised principle of educationalists that vocational training should not be introduced into the primary school, the Committee saw no reason why nature study should not be given a strong agricultural bias, more especially in Standards V and VI of the rural school course. The aim should be to arouse the interest of the child

in his environment, and thus help to arrest the unfortunate tendency of the rural population to drift into towns".

In the *Cape Province* nothing is done in the way of formal vocational training in elementary schools. In the *Natal Province* no very definite steps to introduce vocational agriculture training into elementary schools have been taken. In the *Transvaal Province* an attempt has been made to include a comprehensive course in nature study in rural elementary schools; the aim of this course is to quicken an intelligent interest in rural environment and thus develop a bias towards work on the land; the course is, however, far removed from a purely vocational course. In the *Orange Free State Province* a course of nature study with an agricultural bias is prescribed in all elementary schools and a few secondary schools take agricultural science as the subject for matriculation, but no special vocational agricultural education is followed in any of the schools.

The *Transvaal Province* has a secondary school for boys, at which agricultural courses are provided.

Vocational Agricultural Education

Agricultural Schools

There is no division of agricultural education between lower-grade and intermediate institutions. A twelve months' course of practical training in agriculture is offered at two Government training farms. The course is designed for the purpose of equipping men to become satisfactory settlers. Three classes of persons are dealt with, namely, (a) those who on account of age or for financial or other reasons find it impossible to enter a school of agriculture, (b) settlers arriving from overseas who require to gain experience before embarking on schemes of their own; and (c) persons wishing to qualify themselves as farm managers or farm foremen.

There also exist five schools of agriculture, controlled by the Union Department of Agriculture. Of these, two are situated in the Cape Province, and one each in the Transvaal, Orange Free State, and Natal. Each institution is located on a large farm and is well staffed and equipped. The scope and standard of the courses of instruction at all the schools, as well as the fees charged, are uniform. The principal course is the diploma course of two years' duration. For this the minimum age of entry is sixteen years. Candidates must have had some secondary school education. The course affords a sound up-to-date education in farming to the youth of the country, and offers as complete and thorough a training in agricultural practice and science as is possible in two years. Particular attention is given to practical work. Approximately one-half of the time of the student is devoted to the acquisition of some skill in the various farm operations, and in farm handywork, such as blacksmithy, carpentry and saddlery. A few bursaries are awarded each year to the deserving sons of parents who are not in a position to pay the fees or all the fees. In 1925 there were 200 diploma students at these schools.

The *Orange Free State* has an agricultural school for boys and girls, where the course covers a period of three years and is intended to prepare boys to take positions as overseers on farms or to make a

start for themselves, and girls as housekeepers and prospective wives of farmers.

Agricultural Faculties have been established at the Transvaal University College, Pretoria, and the University of Stellenbosch. They offer a four years' degree course.

Special Institutions

In addition to the diploma course, special courses, adapted to the specialised farming of each area, are provided at the schools of agriculture, namely at Grootfontein, a sheep and wool course, lasting from February to September; at Glen, a dairy factory managers' course during August and September, and a cheesemaking course from August to October.

The sheep and wool course at Grootfontein is designed to provide a sound practical training in the breeding, feeding and management of sheep and in the classing and sorting of wool. Where possible, upon the satisfactory completion of this course, arrangements are made for students to acquire further training and experience in accompanying the sheep and wool experts for the purpose of classing and breeding of flocks, or wool sorting and classing on sheep farms. Candidates must be over eighteen years of age and possess either the diploma of an agricultural school or previous experience in sheep farming or with a wool broker or buyer. In 1925, 30 students were following this course. The cheese-making course is designed to provide practical instruction for farmers and their sons; candidates must be over eighteen years of age. For the dairying course at Glen, candidates must be over eighteen years of age and possess either the diploma of an agricultural school or furnish evidence of having had considerable experience in practical dairying.

Agricultural Extension Education

A series of short vacation courses in most agricultural subjects is given at all the schools of agriculture during the winter vacation from June to August in periods of not more than six days for each course. These courses are designed to meet the needs in particular of farmers and their wives and daughters, rural school teachers and others engaged or interested in agricultural pursuits who are unable to devote more than a few weeks to acquiring some knowledge of the subjects taught. Women are admitted to the courses in poultry, dairying, horticulture and apiculture in addition to the courses in domestic science specially provided for them. In 1923, 1,057 persons, of whom 332 were women, attended these short courses at the schools of agriculture; 28 attended the special short course in sheep and wool at Potchefstroom; 24 attended the special short course in wine-making at Elsenburg; 84, of whom 3 were women, attended the special course in citriculture, tobacco and cotton at Rustenburg, and 57 attended the sheep-shearing and wool-classing courses at Glen. A separate Division of Extension was created in 1922, the principal function of which is the systematic organisation of visits of experts and of lecturers from the schools of agriculture to elected centres to give lectures and demonstrations to the farming community on their respective subjects. In 1925 there were 117 experts, of whom 66 were on the staffs of the schools of agriculture. Itinerant instruction in sheep shearing and

wool classing is also given to sheep farmers in the areas served by Grootfontein and Glen by the sheep and wool experts and it is proposed to extend the scope of this instruction. Lectures and demonstrations are given at meetings of farmers' organisations and agricultural shows, and personal advice is offered to farmers on the spot, while a system of "Farmer's Weeks" has been inaugurated for outlying districts. Co-operative experiments are also carried out with farmers which include cultural and manurial trials as well as variety tests under differing soil conditions.

A demonstration train periodically tours the Union to enable the latest methods of agriculture to be demonstrated.

Some 400 agricultural societies and farmers' associations have been formed in the four Provinces of the Union for the purpose of co-operation with the Government and generally for mutual assistance in dealing with matters of local concern; they are mostly affiliated to Provincial Unions and these to the South African Agricultural Union, which supports the Government in encouraging agricultural education. An organisation styled the "Transvaal Home Industries" has been formed for the purpose of spreading the teaching of home industries, domestic science, and household economy among the wives and daughters of the farmers in the Transvaal. A boys' maize-growing competition has been conducted by the School of Agriculture, Potchefstroom, for some years and has become a prominent feature of the work of the rural schools; the Port Elizabeth Agricultural Society proposes to organise similar competitions. A boys and girls' poultry club has been established at Malmesbury in the South Western Cape and the Department of Agriculture is doing everything possible to encourage the formation of such clubs.

Principal Source

The Answer of the Government of the Union of South Africa to the Questionnaire of the International Labour Office.

AUSTRALIA

Authority and administration; organisation.—In none of the Australian States is there any general legislation regulating agricultural education. Education Acts make some reference to such education and there are special Acts dealing with Agricultural Colleges. As a rule, the Departments of Education administer agricultural instruction when given in connection with general education as well as the Agricultural Faculties at the Universities; the Departments of Agriculture, on the other hand, are responsible for Agricultural Colleges and agricultural extension education.

Ruralisation of the curriculum is found in all elementary schools; a few secondary schools give so much agricultural education that they might almost be classed as vocational intermediate agricultural schools. Agricultural Colleges giving a two to three-year course exist in all States, but standard varies; the highest agricultural education obtainable is given at one College, but in other cases this is found at the Agricultural Faculties of the Universities. Agricultural extension education is mostly organised through State services.

Elementary education in rural districts; continuation education, secondary education.—In all States elementary school attendance is compulsory for children between six or seven and fourteen years of age. The teaching of agriculture and horticulture is combined with the teaching of nature study in all rural elementary schools, and such teaching is in general encouraged. In nearly all States elementary schools have gardens attached. In *Western Australia* an officer devotes all his time to ensuring the ruralisation of the curriculum in elementary schools; the success of such ruralisation depends largely on the teacher's taste and qualification. In *Queensland* the children also carry out practical work at home under the supervision of the teacher; in addition, in 162 schools (1925) instruction was being given in milk and cream testing, while in certain districts schools have been specially equipped to give instruction in crafts of special application and interest in country districts, for boys, e.g. sheet metal work, blacksmithing, gardening; within the districts from which such a special school is accessible boys and girls from all schools may attend the special classes. In *South Australia* a few teachers, with the consent of the Department of Education, give an elementary agricultural course at their schools. In general, no hard and fast line can be drawn; as is stated in the case of *Western Australia*, there is a gradual progression from the town school giving nature study only to the special schools taking a large number of agricultural subjects; the number of such special rural schools in that State is 30.

Continuation classes, at which attendance is voluntary, are frequent. Higher elementary schools exist in *South Australia* and *Victoria*. In *New South Wales* pupils can proceed to day continuation classes, which in the countryside are called "rural schools"; these schools definitely arrange their curriculum to co-ordinate both with the elementary and secondary schools, and include the study of rural economics; in 1927 there were 1,138 pupils at these schools. In *Queensland* the specially equipped elementary school mentioned above is open without payment of fees even to those who have left the elementary school if not more than seventeen years of age, and on payment of fees to all adults.

In *New South Wales* several secondary schools include agriculture in their course. In *Victoria* provision is made for the teaching of agricultural science in a small proportion in more than a hundred secondary schools under the control of the Education Department; 8 schools are fully equipped with farms; the horticultural and agricultural work on these farms is under the direction of a teacher graduated in agriculture assisted by a local committee of the most experienced and progressive farmers of the district; all the boys in these schools take practical and theoretical agriculture as part of their education; at present some 600 boys in this State include agricultural science in their studies. In *Western Australia* 6 district secondary schools, for pupils between fourteen and eighteen years of age, include agricultural science in their curriculum; these schools are generally situated in farming districts where the pupils have sufficient general knowledge of farm operations to grasp the application of general principles. *New South Wales* has 2 agricultural secondary schools open to boys who have attended an elementary school; the purpose is to initiate boys into the scientific management of a farm; the course, which lasts three

years, is divided into three sections : (a) general section, which is the same as that laid down for all public secondary schools, in English, History, etc., (b) science section, which is essentially practical, and (c) an agricultural section including practical and theoretical courses on the growing of crops, fruit growing, poultry breeding, etc. School fees are paid, but bursaries are available. In 1925 the number of students at both schools was 232.

Vocational Agricultural Education

Apprenticeship

In *New South Wales* farm apprenticeship schools exist at various centres, which receive youths between sixteen and twenty years of age for six months' practical training in farm work. No formal theoretical teaching is given, but occasional lectures and demonstrations enable the boys to gain a thorough understanding of the operations on which they are engaged; no fees are paid. At two centres farm schools are established for students over fifteen years of age, giving two years' courses, including organised lectures by resident and visiting staff; low fees are paid. On five State experimental farms and two experimental orchards in *South Australia* a limited number of sons of wage earners or others are accepted as farm apprentices on special terms; they are lodged and boarded and paid a small salary per week; after two years' apprenticeship they are considered to be fairly competent in the usual farm manual operation.

Intermediate Agricultural Schools

The Agricultural Colleges or Schools, of which there is one in each State (two in *Victoria*), provide agricultural instruction of an intermediate grade. Their main purpose is to train practical farmers, but sometimes also to give more scientific training. Apart from lessons in English and sometimes also in History, the instruction is purely vocational and is both theoretical and practical. Apart from these common features the organisation of these Colleges differs somewhat from State to State.

The two Colleges in *Victoria* admit students over fifteen years of age having a satisfactory general education. Instruction, apart from lessons in English, is purely vocational and equally divided between theoretical and practical teaching. Both Colleges have a 2-year certificate course; one also a 3-year diploma course; in 1926 they had together 146 students. It is estimated that 85 per cent. of those who pass through the Colleges go on the land or take up some form of agricultural work. Fees are paid; five scholarships are awarded by competition. The College of *New South Wales* has two courses, a 3-years' diploma course in agriculture and a 2-years' diploma course in dairying for dairy farmers, dairy factory managers, etc. Students must be sixteen years of age (seventeen for the dairy courses). For the three years' diploma course in agriculture students must previously have attended a lower secondary school course, or a "rural school", or must pass an examination. Scholarships are available and are especially awarded to students who have attended an agricultural secondary school. In *Queensland* students at the Agricultural College must be between fourteen and twenty

years of age; their previous education must enable them to benefit from the instruction. There are two courses, the junior course lasting three years in which the general education of the pupil is continued and agricultural education begun, and the senior course which lasts for a further period of two years. Fees are paid, but a liberal system of scholarships exists for children at the elementary schools awarded by competitive examination; these scholarships are for a period of three years renewable by selection among pupils for another two. There are usually about 30 pupils at the College. In *South Australia* pupils are admitted from fifteen years and upwards at the Agricultural College. A previous good secondary education is required. The course lasts three years. Six scholarships, tenable for the full course of training, are available annually. There are usually between 50 and 60 students at the College. Finally in *Western Austria* students are eligible for admission to the Agricultural College between the ages of fourteen and sixteen years, provided they have passed the sixth class of an elementary school. The course lasts 2 years. A certificate is obtainable. The school does not prepare boys for University examinations. Fees are charged for the maintenance of the pupils.

Higher Agricultural Education

South Australia has only a professorship in agriculture attached to the University. All other States have diploma courses in agriculture at their Universities. In *Western Australia* there is a 2-year diploma course and a 3-year degree course. Students must be seventeen years of age; for admission to the degree course, matriculation in the Faculty of Science is demanded. Practical experience is insisted upon by the University before proceeding to the final year of study. No fees are charged. Besides scholarships open to all students, one State Government Exhibition is open to intending students of agriculture and annual scholarships given by the State Department of Agriculture. The University of Sydney in *New South Wales* has a Faculty of Agriculture providing a course extending over at least 4 years leading to a degree of B.Sc. in Agriculture. Melbourne University in *Victoria* has a well-equipped School of Agriculture. The course extends over 4 years; the first is devoted to pure science, during the second pupils are engaged on practical farming at a State research farm; the remaining two years are devoted to the more specialised study of agriculture on a scientific basis. About 8 to 10 students take the Bachelor of Agricultural Sciences degree each year. A number of free places for study for this Degree are awarded annually by the State Government.

Special Institutions

The Adelaide School of Mines in *South Australia* provides some agricultural courses in wool-classification, fruit-culture, poultry-keeping, etc. The Technical Education Branch of the Department of Education of *New South Wales* offers a course in the practice and theory of agriculture. Instruction is given in the evenings and on Saturday afternoons. There are two courses lasting two years for those intending to take up general farming on a large scale, and for those desirous of commencing in beet-farming or fruit, vegetable and

flower-growing on intensive lines. Practical instruction is included. The Education Branch also gives agricultural instruction by correspondence. Special courses are given at the Agricultural College in dairying, pig-tending and poultry-keeping. The School of Primary Agriculture and Horticulture at Burnley in the same State holds regular courses on instruction in agricultural science for those desirous of taking the subject either in intermediate or leaving grade at the University public examination conducted at the University. The Burnley School has also courses in poultry keeping. In *Western Australia* the Department of Agriculture has inaugurated, in co-operation with the University, a dairy science course and orchard workers' course. In *Queensland* short courses in special branches of agriculture are given at the Agricultural College. There exists further a special school in tractor construction and tractor operations in general farming. In 1925 there were 70 students in attendance at this school.

Agricultural Extension Education

In all States the Agricultural School or College organises short winter schools of two to four weeks' duration for farmers and their adult sons. The instruction comprises both lectures and practical demonstrations. In *Victoria* a vacation school is held annually by the Faculty of Agriculture at the University attended on an average by 80 persons, mainly teachers in agriculture and farmers. The Departments of Agriculture employ staffs of agricultural advisers and experts, who give lectures, arrange demonstrations and field days, and pay visits to the farmers. The answer of the Australian Government to the Questionnaire of the International Labour Office mentions in the case of *Western Australia* the existence of boys' and girls' clubs, and also the work of the agricultural bureaux, which in *South Australia* number 233 branches comprising 6,366 members (1925), and in *New South Wales* 300 branches. In *Queensland* the Chamber of Agriculture has affiliations with agricultural societies throughout the State; many of these societies conduct experimental plots.

Principal Sources

The Answer of the Government of the Commonwealth of Australia to the Questionnaire of the International Labour Office.

The Official Year Book of New South Wales, 1926-1927. Sydney, 1928.

Victoria Year Book, 1926-1927. Melbourne.

CENTRAL AND SOUTH AMERICA

ARGENTINA

Authority and administration.—Agricultural vocational education is regulated by Administrative Decrees. It is under the direction of the institutions in organisations dependent on the General Directorate of Education in the Ministry of Agriculture and of the Faculties of Agriculture at the Universities.

Elementary education in rural districts.—The educational authorities of the Province of Buenos Ayres strongly encourage the movement

for the teaching of agriculture in elementary schools by means of elementary science lessons and manual work. This instruction is given by district agricultural advisers, who also organise agricultural clubs in order to interest the pupils in questions like seed selection, etc.

Vocational Agricultural Education

Agricultural Schools

Vocational agricultural schools in Argentina specialise according to the local characteristics of the agriculture in their district. They are divided into two groups, practical schools and special schools.

Five practical schools exist. Their purpose is to train persons for all operations relating to the branch of agriculture taught in the school. Pupils must have attained the age of fifteen years, have completed the fourth standard in the elementary school and pass an entrance examination. Training is practical and only so much theoretical instruction is given during the execution of the practical work as is necessary to explain the practical instruction. Two schools train in agriculture and dairy work, one in agriculture and fruit growing, one in sub-tropical agriculture, and one in general agriculture. Pupils are divided into two groups, those who receive instruction and board free and those who pay fees.

Special schools aim at giving a scientific training sufficient for persons who wish to enter on the management of agricultural estates or agricultural industries. Students must be seventeen years of age, have completed the sixth standard of the elementary school, and pass an entrance examination. One school gives a diploma in farm management, one in agriculture and dairying, one in agriculture and animal husbandry, one in agriculture, viticulture and oenology, and one in agriculture and sugar-production. An experimental station is attached to each school. Students who cannot bear the cost of instruction are admitted free.

The most advanced agricultural education is given at the Agricultural Faculties of the Universities of Buenos Ayres and La Plata.

Agricultural Extension Education

Such education is provided by 44 district advisers, who give practical instruction to farmers by means of lectures, visits, experiments, etc.; as mentioned above, they also give agricultural instruction in the elementary schools. The number of farmers who attend at the lectures varies according to the agricultural standards of the districts—in certain cases more than 300 persons may attend. The advisers also organise competitions and agricultural shows and organise agricultural co-operative societies.

Principal Source.

The answer of the Government of Argentina to the Questionnaire of the International Labour Office.

CHILE

Elementary education in rural districts.—The curriculum of the elementary school comprises a course in agriculture. The schools also make use of an experimental plot, where the children are taught the essential elements of agricultural theory and practice adapted to local requirements.

Vocational Agricultural Education

Agricultural Schools

Five practical schools of agriculture exist. Their purpose is to train farmers in general agriculture or in special branches such as viticulture, animal husbandry, etc. Students must be sixteen years of age, know how to read and write correctly, and have some notions of arithmetic and geography. At four schools the course lasts 3 years and is principally of a practical character; at the fifth school it lasts 4 years, 2 years being spent in instruction in general agriculture and the last 2 being devoted to special branches. This school gives a diploma, the other schools give certificates. An entrance fee has to be paid, but both instruction and board are free. There are about 300 students.

Higher agricultural education is given at the Agricultural Institute. The Institute has several courses, the principal course is intended for students having completed their secondary education; the course lasts 4 years. Further, there exist free courses for general agriculture, fruit growing, animal husbandry, viticulture, and agricultural industries. These are intended to enable persons who have not completed their secondary education to obtain a thorough agricultural instruction; students must, however, have attended the first four classes of a secondary school. The courses last 2 years; a certificate only is given. The Institute also holds short courses in general agriculture, fruit growing, viticulture, dairying, poultry-keeping, and bee-keeping.

Some private institutions, such as the Catholic University and others, also give some courses in agriculture.

Agricultural Extension Education

This is provided by district and itinerant agricultural advisers, all of whom depend on a Chief Agricultural Adviser and his technical administrative staff. Visits are paid and advice is given to farmers; district tours are arranged; articles are supplied to the local press; pamphlets published, and demonstration plots established, etc. In 1924 there were 8 district and 4 itinerant advisers. A special demonstration train is despatched annually, from which extension courses are given.

Principal Source

The Answer of the Government of Chile to the Questionnaire of the International Labour Office.

CUBA

There is no general law regulating the agricultural education system in Cuba. The Secretary of Public Instruction encourages teachers to include agricultural subjects in the curriculum of elementary schools, but no real vocational training is given. Six practical agricultural schools exist, attached to model farms, one in each province. Students must be fourteen years of age and pass an entrance examination. The course lasts 2 years, 8 months in each year; 14 hours' theoretical instruction is given weekly; also much practical instruction. Instruction is purely vocational. Each school has accommodation for 30 pupils, 15 entering each year; half the pupils must be sons of farmers.

The University of Havana has a certificate course lasting 3 years, and a diploma course lasting 4 years for agricultural experts. It has also special courses for cane-sugar growing. A special private school exists for the cane-sugar industry. The answer of the Government of Cuba to the Questionnaire of the International Labour Office states that no agricultural extension work is carried on.

Principal Source

The answer of the Government of Cuba to the Questionnaire of the International Labour Office.

HAITI

Two Acts are in force for the organisation of a Section for Technical Education and Vocational Education in the Department of Agriculture and for the establishment of agricultural schools.

In the *elementary school*, at which attendance is obligatory for children from their sixth to their twelfth year, agricultural education proper is not given, but the curriculum of country schools is to some extent ruralised by means of object lessons bearing on local agricultural operations. This instruction is given together with the teaching of natural science and is an obligatory subject from the first year onwards. During the winter season instruction is mainly theoretical; the spring and autumn are used for practical exercises. Similar instruction given in town schools bears rather on the theoretical side of agriculture, whereas in village schools equal stress is laid on theoretical and on practical teaching. Further, premiums are given to teachers in order to encourage agricultural instruction in elementary schools.

Attendance at *continuation classes* is obligatory for children from their twelfth to their fifteenth year. The number of weekly lessons is from 7 to 10 hours during the winter; during the summer at least 4 hours. In rural continuation classes the instruction, which takes local needs into consideration, bears on all branches of agriculture.

Instruction of a more vocational kind is given in the *rural farm schools*, although these schools do not teach agriculture only, but all that is necessary for the development of intelligent and efficient citizenship. When a school of this kind is first opened, very few of the children are found able to read or speak the French language. This, however, does not seriously interfere with the teaching of garden

work, manual training, and the lessons in agriculture, since they are given orally in Creole. By the time the child is trained to read French he has already attained considerable skill in manual operations; he is taught from the very beginning that these are the important things to learn, whereas reading, writing, and mathematics are merely aids to better farming. During the year 1927-1928 a total of 48 farm schools were in operation, with an enrolment of 5,464 pupils. The average number of pupils per school is steadily increasing.

One of these farm schools has been chosen as a site for a *secondary agricultural school*, from which the students can pass to the Central School of Agriculture, where *higher agricultural education* is given. Students are admitted at about seventeen years of age. The State gives 50 scholarships distributed among candidates from different parts of the country. In 1927, 86 students entered for their first term.

Agricultural extension education is carried on by agricultural agents, who represent the technical services of the Department of Agriculture. In 1927 there were 11 agents working throughout the country. The agricultural agents have 20 demonstration plots at their disposal.

Principal Sources

The answer of the Government of Haiti to the Questionnaire of the International Labour Office.

The Bulletin of the Pan-American Union. Washington, 1929.

ASIA

BRITISH INDIA

Authority and administration; organisation; extent of agricultural education.—Since the constitutional reforms of 1921 agriculture is a "transferred" subject, i.e. has been transferred from the Central Imperial Government to the Provincial Governments. Accordingly the measures adopted are regulated by the Provincial Governments to suit their needs. An Imperial Department of Agriculture exists and is assisted by an Imperial staff of research experts and Directors of Agriculture, etc.; further, by an advisory body known as the Board of Agriculture. By recommendation of the Royal Commission on Agriculture, which reported recently, a Central Council of Agricultural Research, which has advisory functions, has also been set up.

With the exception of the higher forms of agricultural education and of research India may be said to be still in the experimental stage. Not only have the vast size of the population and the absence of compulsory general education constituted permanent difficulties, but it is now acknowledged that the literary type of education provided in existing secondary schools has been unsuited to the rural population; it has tended too much to alienate those who have profited by it from the practical career of farming. Great efforts have been made to encourage agricultural education, but the creation of purely vocational schools has not met with great success; the most hopeful line of attack appears to be the mixed secondary school as first tried in the Punjab, which includes a certain amount of agricultural teaching in its general courses; these are known as "bias" schools and their number is increasing. There is adequate provision for higher agricultural

training and for research. Extension education generally takes the form of demonstration work, but there is still much to be done owing to the vast size of the country. In general, it is stated that "the number of Indians trained up to date in the technique of good agricultural practice is insignificant and quite inadequate".

Elementary education in rural districts; secondary education.—There is no general compulsory school attendance in India. Elementary Education Acts have indeed been passed by seven Provincial Legislatures authorising the introduction of compulsory free elementary education by local option, but this local option has not so far been exercised. Attempts have been made to give instruction in practical agriculture in village schools in certain Provinces, and also to establish school gardens and courses of nature study, but the principal efforts made to teach agriculture have been in connection with so-called "middle" or secondary schools (see next section).

Vocational Agricultural Education

Intermediate Schools

Of the so-called middle schools there are two distinct types, the vocational school and the "bias" school. The evolution of these two types of school has been the result of acute divergencies of opinion. The vocational school (Bombay) "purports to fashion a youth of a cultivating or a landholding class into a farmer in two years", while the "bias" school (Punjab) merely aims at giving a boy a bias towards agriculture in the course of his general education; a circular of the Punjab Government, 1923, states that the object of the agricultural teaching is to use agriculture as a means of mental discipline and training and as an important accessory to the general subjects taught in these schools; a special feature is the small farm or plot attached to the school.

The answer of the Government of India to the International Labour Office Questionnaire stresses the "indifferent success" attained by purely vocational teaching; there is a lack of openings for profitable farming and in any case scholars receiving other than elementary education show themselves disinclined to return to their hereditary calling; attempts are made to meet the wishes of parents who require their sons' assistance by opening half-time schools and by the granting of holidays during the harvest. The difficulty of making vocational instruction popular is also emphasised by other authorities, and the recent Royal Commission on Agriculture has recommended the discontinuation of the purely vocational type of school in favour of the school which incorporates agricultural instruction as part only of its general curriculum. Agricultural teaching in such schools begins at the age of eleven or twelve and lasts for four years.

There were still 19 vocational agricultural schools in existence in 1927-1928; the number of "bias" schools was much greater and included 121 in the Punjab (i.e. over one-fourth of all vernacular middle schools), 67 in Bombay, and 5 in Bihar. Of the 19 schools some were closed in the course of the year, and a few others were being used to train teachers for the "bias" schools or for other purposes. As an example of the success of the "bias" school may be mentioned the fact that almost one-half of the boys trained at the "bias"

school in the Central Provinces took up farming after their school career.

Higher Agricultural Education

There are 6 Provincial Agricultural Colleges (4 affiliated to Universities) and 2 Imperial Research Institutes where post-graduate students are trained. The Colleges train both for farming and for service in Government Agricultural Departments, most students aiming at the latter. Certificate courses lasting 2 years, and degree or diploma courses lasting 3 or 4 years, are provided; the former train for farm management or subordinate posts, the latter for superior posts. Students are usually twenty years of age. A certain number of scholarships are provided. Training at the Imperial Research Institutes at Pusa and Bangalore (the latter for Animal Husbandry and Dairying) is of the most advanced kind and implies previous graduation at a University or at an Agricultural College. In 1927-1928 there were 20 students taking post-graduate courses and 10 students who passed a final examination at the 2 Imperial Institutes, and 882 students taking at least 2-year courses and 140 who passed a final examination after such courses at the 6 Agricultural Colleges.

Special Institutions

The Imperial Institute of Animal Husbandry at Bangalore offers a 2-year diploma dairy course, and that Institute and the Pusa Institute accept a few students for shorter advanced courses. The Agricultural Colleges and vocational schools and some of the Government experimental stations give short courses of practical training. These courses are adapted to local needs, often given in the vernacular, and range over a wide variety of subjects; in 1927-1928 the courses at one College included a one-month rural economy class and a 6-weeks' blacksmiths' class, and at one school included an engine drivers' class; a one-week course for farmers and a 2-week course for practical fruit-growers were innovations in that year.

Agricultural Extension Education

The answer of the Government of India to the Questionnaire of the International Labour Office states that "for the education of the great illiterate mass of population, the system of actual demonstration of improved agricultural practice has been found to be more useful than any systematic teaching in agriculture in the present stage of general education". The Provincial Agricultural Departments have created a vast organisation which embraces the activities of thousands of village demonstration plots (either on cultivator's own fields or on Government farms), seed farms, and seed and implement depots. Methods of demonstration vary according to local conditions. Itinerant assistants tour the villages and instruct the people on proved methods of crop production. Parties of cultivators are brought to the Government farms occasionally and are shown the various improved practices.

In the *Bombay Presidency* propaganda and extension work are being directed by six Divisional Boards on which the Agricultural and Co-operative Departments, and the non-official public are represented.

The *Madras* Agricultural Department employs 112 demonstrators who, in the year 1927-1928, carried out 5,430 practical demonstrations on land belonging to cultivators; they organised 125 agricultural shows and delivered 241 illustrated lectures. In *Bengal* the Department is demonstrating its improvements on farms worked by ordinary cultivators who are paid in kind; the number of such farms is 150. The Department has organised a stall in the demonstration train run by the East Bengal State Railway. The *United Provinces* have 16 seed and demonstration farms and 9 demonstration plots. The feature of the extension work of this province is the large number of private farms run on improved lines by persons with capital or land, or both. There are now 859 such farms, of which 147 are of 100 acres or more. In the *Punjab* half a dozen large blocks of land are used for the multiplication of improved seed and for practical demonstration purposes. The Department also runs some hundreds of demonstration plots on land belonging to cultivators. There are 118 "better farming" societies organised on co-operative lines, composed of cultivators who have undertaken to farm their lands in accordance with the advice of the Agricultural Department. The Departmental cinema lorry toured in 1927-1928 some 1,291 miles and gave 69 shows of films of agricultural interest. The demonstration train, organised in co-operation with other Departments, visited 70 stations in its tour of three months. In *Burma* over a thousand demonstrations were carried out during the year on small plots placed at the disposal of the Department by cultivators or rented for that purpose. In the *Central Provinces* the district staff carried out 4,339 practical demonstrations, organised 47 agricultural shows, and delivered 231 illustrated lectures. In 1927-1928 in British India (omitting the *Punjab*, for which figures are not available) 374 agricultural shows were held, 36,670 practical demonstrations were carried out, and 873 illustrated lectures were given.

Principal Sources

Answer of the Government of India to the Questionnaire of the International Labour Office.

GOVERNMENT OF INDIA, CENTRAL PUBLICATION BRANCH. *The Review of Agricultural Operations in India*, 1927-1928, and other years. Calcutta.

Report of the Royal Commission on Agriculture in India. London, 1928, 755 pp. (Cmd. 3132.)

A. and G. L. C. HOWARD. *Indian Agriculture*. Oxford University Press, 1927. 98 pp.

CHINA

In 1922 the education system of China was reorganised and the following system laid down.

The *elementary* school is to occupy the first 6 years of the child's school life and is to be divided into two periods of 4 and 2 years respectively. During the second period vocational lessons can be given comprising 2 hours per week or about 80 hours per year. These vocational lessons must conform to the needs of the locality. The total number of elementary schools at which such vocational courses

are included in the curriculum is over 5,500, but no statement can be made as to how many of these teach agriculture.

The *secondary* school course covers 6 years, divided into two periods of 3 years each. During the first period general education is given; during the second a certain amount of specialisation takes place preparing the student either for studies at a higher educational institution or giving him a vocational training.

A certain number of vocational agricultural schools exist to which students who have passed the elementary school are admitted. Supplementary classes can be attached to these schools or to other institutions, the purpose of which is to give agricultural lessons to agricultural workers.

Higher agricultural education is given at six Agricultural Colleges: the teachers at agricultural schools organise from time to time itinerant lectures for farmers. These are further invited to visit the experimental stations attached to the classes and also to see scientific and practical demonstrations.

The missionaries have 2 agricultural colleges, 5 secondary schools with agricultural courses, 14 crop improvement courses, 35 extension courses, 52 school gardens, and 11 classes for seeds. These schools are in fifteen provinces.

Principal Sources

The answer of the Government of China to the Questionnaire of the International Labour Office.

The China Year Book, 1926.

JAPAN

Authority and administration; organisation; extent of agricultural education.—There is no general Act covering the agricultural educational system; various regulations provide for different types of agricultural education. All such education is administered by the Minister of Education.

Courses in agriculture are given in higher departments of rural elementary schools. Pupils can then proceed from these departments, or even directly from the lower departments of such schools, to the agricultural continuation classes which exist nearly everywhere. Vocational teaching institutions include about 325 lower-grade agricultural schools of two types, attended by about 55,000 students, and seven intermediate schools of high standing; higher agricultural education is given at the Universities.

The proportion of the Japanese farming population receiving agricultural training may be estimated to be comparatively high.

Elementary education in rural districts; continuation classes; secondary schools.—Attendance at the elementary school is obligatory. About two-thirds of the existing schools have both a lower department (six years' teaching) and a higher department (two years' teaching); one-third have only a lower department. Owing to the density of the agricultural population and the size of the Japanese village, the difference between the urban and rural elementary school is often insignificant. Rural elementary schools having higher departments

give courses in agriculture (160 hours' theoretical and 120 hours' practical teaching per year), and teachers are encouraged to adapt these courses to local conditions. Practical training is carried on by means of demonstration plots, school gardens and allotments; visits to agricultural experimental stations and model farms are arranged. The number of elementary schools providing courses of agriculture in their higher departments in March 1921 was 8,493.

There are agricultural continuation classes, mostly organised by the local authorities, but a few by voluntary associations, in nearly every village. Attendance is voluntary, but it is stated that it is encouraged almost to the extent of making it compulsory. Pupils leaving lower and higher departments in elementary schools are catered for separately, there being two courses of two years' each, but those in the lower course join those in the upper course after their first two years' study. Courses are seasonal and instruction is given during the evening. Adaptation of the teaching to local conditions is practised in these continuation courses as it was in the agricultural teaching in elementary schools; there are a few special courses of training for particular branches of agricultural work, such as repair of machinery, dairy work, etc., but the courses also aim at giving some general education. In addition to class-room instruction demonstration plots are provided in the villages, and teachers personally visit pupils' farms and take pupils to see model farms. In 1926 there were 12,052 agricultural continuation courses, attended by 240,000 girls and 545,000 boys.

A few secondary schools arrange seasonal courses in agriculture.

Vocational Agricultural Education

Lower-Grade Agricultural Schools

Two types of lower-grade agricultural schools exist, intended for pupils having attended the higher and the lower departments respectively in their elementary school. Pupils coming from lower departments must be between twelve and fifteen, and coming from higher departments between fourteen and seventeen years of age; an entrance examination is enforced. Courses last two to three years. There are 173 of the more elementary lower-grade schools attended by 23,000 pupils, and releasing about 7,000 pupils per year; and 147 of the more advanced schools attended by 29,000 pupils and releasing about 8,800 per year. Attendance is increasing. About 10 per cent. of pupils may be estimated to be girls.

Intermediate Agricultural Schools

There are seven agricultural or forestry colleges (for boys only) under the control of the Minister of Education. They train for practical farming. Pupils who have attended either general secondary schools or lower-grade agricultural schools may enter, but the number of applicants outnumber the available accommodation and admission is partly by examination. Candidates must be at least thirteen years of age. The course extends over three or four years. Attendance in 1926 was 2,287 students.

Higher Agricultural Education

Higher agricultural education can be obtained at the Universities, which are either Imperial or private but State-recognised institutions. Students must have either completed a preparatory University course or attended an intermediate agricultural school, and must pass an entrance examination. The average matriculation age at the Agricultural Faculty of one University is between twenty-two and twenty-three years of age. Three of the Imperial Universities have Agricultural Faculties catering together for 1,450 students. One private University, the Agricultural University of Tokio, teaches about 1,100 students.

Special Institutions

The figures given for lower-grade agricultural schools include some special schools for sericulture, horticulture, animal husbandry, etc., but separate figures cannot be given. There are three Colleges for sericulture catering altogether for 800 students.

Agriculture Extension Education

Agricultural extension education is given to independent farmers and to tenant farmers; practically no farm labourers working for wages receive this sort of education, but it must be remembered that the great majority of wage-paid workers, in addition to working for others, cultivate their own plots. The agricultural schools sometimes arrange special agricultural courses of short duration. In addition, teachers of these schools and the experts employed by local authorities and by agricultural societies, as well as experts of agricultural experiment stations and agricultural extension institutes, give short extension courses on special subjects as well as practical instruction and consultations to farmers. The sericultural societies send instructors to their members, the animal husbandry societies send out experts to advise members and give short lectures and advice. Demonstration plots are provided by various associations, and agricultural exhibitions and competitions are held at experimental stations. Posters are also distributed and cinema films are shown. The education given is always adapted to local conditions. The number of the societies taking part in extension work is as follows: in 47 provinces 46 provincial agricultural societies, in 636 counties 557 county agricultural societies, in 83 cities 51 urban societies, and in 12,148 towns and villages 11,410 local agricultural societies. Occasionally extension courses and lectures are held by landowners' organisations, by tenants' associations and by joint associations of landowners and tenants. The number of persons who were receiving agricultural extension instruction for a period longer than five days was, at the end of 1922, 1,190,000.

Principal Sources

The Answer of the Government of Japan to the Questionnaire of the International Labour Office.

CABINET IMPÉRIAL, BUREAU DE LA STATISTIQUE GÉNÉRALE. *Résumé statistique de l'Empire du Japon*, 1929. Tokyo, 1929.

The Japan Year Book, 1928. Tokyo.

APPENDIX

I.—Recommendation of the International Labour Conference concerning the Development of Technical Agricultural Education

The text of the Recommendation is as follows :

The General Conference of the International Labour Organisation of the League of Nations,

Having been convened at Geneva by the Governing Body of the International Labour Office, and having met in its Third Session on 25 October 1921, and

Having decided upon the adoption of certain proposals with regard to the development of technical agricultural education, which is included in the fourth item of the agenda of the Session, and

Having decided that these proposals shall take the form of a Recommendation,

adopts the following Recommendation, to be submitted to the Members of the International Labour Organisation for consideration with a view to effect being given to it by national legislation or otherwise, in accordance with the provisions of Part XIII of the Treaty of Versailles and of the corresponding Parts of the other Treaties of Peace:

The General Conference of the International Labour Organisation recommends :

That each Member of the International Labour Organisation endeavour to develop vocational agricultural education and in particular to make such education available to agricultural wage earners on the same conditions as to other persons engaged in agriculture.

That each Member of the International Labour Organisation send a report to the International Labour Office at regular intervals containing as full information as possible as to the administration of the laws, the sums expended, and the measures taken in order to develop vocational agricultural education.

By 1929 the Recommendation had been accepted by the following countries :

Australia,
Belgium,
Bulgaria,
Czechoslovakia,
Estonia,
Finland,
France,
Germany,
Hungary,

Italy,
Japan,
Norway,
Poland,
Rumania,
Siam,
Sweden,
Switzerland.

II.—Questionnaire of the International Labour Office concerning Vocational Agricultural Education

(Reprinted from the Report of the First Session of the Advisory Agricultural Committee, 22-24 August 1923)

VOCATIONAL AGRICULTURAL EDUCATION

A.—*Legislation*

1. Is there a general law regulating the whole system of agricultural education in your country? If not, by what legislative measures is such education regulated? Please supply copies of the relevant legislative measures.

B.—*Elementary Education*

1. What measures have been taken to promote attendance at elementary schools in the country districts in which the first elements of vocational agricultural education can be taught?

Has the adoption of vivid and practical methods of teaching such subjects been taken into account as a means of promoting attendance?

2. If vocational agricultural education in elementary schools has been organised in your country with a view to encouraging children to remain on the land, can you give statistical or other information on the results achieved?

3. What steps have been taken, if any, to ensure the ruralisation of the curriculum in elementary schools in country districts?

4. Are there any elementary schools in which special agricultural education has already been instituted?

5. Number of elementary schools of various categories (boys' schools, girls' schools) in which the curriculum includes agricultural subjects.

6. Nature and method of the theoretical and practical training given (pupils' gardens, visits to farms, etc.), number of hours devoted to the subject per year.

7. Number of children who receive education of this kind.

8. Sums expended: total sum and amount per pupil.

9. Results obtained.

10. What facilities are available for children in elementary schools to obtain a more complete vocational agricultural education?

C.—*Continuation Schools and Classes*

1. Is provision made in your country for attendance at continuation schools and classes? Is such attendance compulsory or voluntary?

2. Is there any special system for agricultural workers?
3. Are there, in addition to continuation schools and classes, any regulations concerning the training of apprentices on instruction farms or by farmers specially selected on account of the efficiency of their methods and the results which they achieve?
4. Are there any seasonal agricultural courses?
5. Are there any special courses of training for particular branches of agricultural work, such as the repair of machinery, dairy work, etc.
6. Nature and method of the instruction given.
7. Conditions of the training and appointment of the teaching staff.
8. Sums expended : total sum and amount per pupil.
9. Results obtained.
10. Work done by employers' and workers' organisations or by joint organisations as regards the training of apprentices and vocational education.

D.—*Special Institutions for Agricultural Education*

1. In addition to elementary education and continuation schools and classes, is there any special system of vocational agricultural education by means of which agricultural wage earners can acquire the knowledge required for working a holding or for independent agricultural work, or by which improved methods of farming a small holding can be taught?
2. Are there special vocational agricultural courses in institutions which provide general education (secondary or intermediate institutions, Universities)?
3. Classification of pupils educated in each institution (age, sex, degree of previous education, conditions of admission, etc.). What means are available by which wage earners or their sons can obtain such education (scholarships, etc.)?
4. Number of pupils in the institutions.
5. Object of the instruction given (without entering into the details of the curriculum).
6. Conditions of training and appointment of the teaching staff.
7. Sums expended for the maintenance of the various schools and the sources of these sums.
8. Results obtained by the various classes of schools.

E.—Agricultural Extension Education

1. Is there any system of extension vocational agricultural education by which agriculturalists, whether wage earners or others, can obtain scientific instruction connected with agriculture through :

- (a) Winter schools;
- (b) Special and short courses by travelling or other instructors;
- (c) Local agricultural experts or organisers;
- (d) Local demonstrations;
- (e) Auxiliary organisations, such as Chambers of Agriculture, Farm Bureaux, Women's Institutes, Boys' and Girls' Clubs;

2. Number of Institutions, Courses, Experts, Societies.

3. Type and number of persons actually receiving such instruction.

4. Work done by employers' and workers' organisation or joint organisations in this respect.

Publications of the International Labour Office

****Draft Conventions and Recommendations adopted by the International Labour Conference.**

The latest edition of the above contains all the decisions taken by the Conference at the eleven Sessions held from 1918 to 1928. These decisions are in the form either of Draft Conventions which bind the Governments that ratify them to enact labour legislation in agreement with the provisions of these treaties, if it does not already exist, or of Recommendations which lay down suggested principles of policy for the regulation of conditions of labour for consideration by Governments.

The Draft Conventions and Recommendations adopted at the Third Session (Geneva, 1921) dealing with Agricultural Questions are given in this brochure.

Geneva, 1928. 158 pp. 1s. 6d.; 40 cents.

****Documents of the International Labour Conference (*See following page*).**

The Stenographic Record of the Proceedings of the Third Session (Geneva, 1921) of the International Labour Conference, at which Agricultural Questions were discussed, is available.

2 vols. 1,306 pp. 25s.; \$6.25

***Technical Survey of Agricultural Questions.**

Part I : Adaptation of Washington Decisions. Hours of Work. Unemployment. Protection of Women and Children. Part II : Special Measures for the Protection of Agricultural Workers.

Geneva, 1921. 618 pp. 15s.; \$3.75

***International Labour Review (*Monthly*) (*See following page*).**

In this periodical the following articles have been published in recent years :—

- January 1927 : "Collective Agreements in Italian Agriculture."
March 1927 : "The Science of Farm Labour: Scientific Management and German Agriculture."
September 1928 : "Agricultural Workers and Agrarian Reform in Central Europe," by Dr. Adam ROSE.
December 1928 : "Agricultural Wages and Labour Conditions in the Netherlands."
May 1929 : "Workers' Agricultural Programmes in Austria, England, and Germany," by Dr. Fritz BAADE.
July 1929 : "Social Aspects of Agrarian Reform in Latvia", by F. W. VON BULOW.
November 1929 : "Education in Agriculture", by L. E. MATTHAEI.

***Industrial and Labour Information (*Weekly*) (*See following page*).**

A section of this weekly survey of industrial and labour affairs is devoted to *Agriculture*.

***Studies and Reports (*See following page*).**

In this Series the following has been published :

***The Representation and Organisation of Agricultural Workers**

Geneva, 1928. 210 pp., 8vo. 3s.; 75 cents.

*Published in English and French. **Published in English, French and German.

The publications may be obtained, with free catalogues, from the INTERNATIONAL LABOUR OFFICE, Geneva (Switzerland), or from its National Correspondents (see page 2 of cover).

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Articles on industrial affairs, wage and unemployment statistics, etc.
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A link between those in all countries interested in accident prevention.
Price : 1s. 3d., 30 cents; per year, 6s., \$1.50
7. **DOCUMENTS OF THE INTERNATIONAL LABOUR CONFERENCE** (*Annual*).
The Questionnaires* and Reports* issued for the Conference, the Director's Report*, the Final Record of each Session and the texts of the Draft Conventions and Recommendations adopted.
Annual subscription : 40s., \$10.00
8. **BIBLIOGRAPHY OF INDUSTRIAL HYGIENE** (*Trilingual*) (*Quarterly*).
Price : 1s. 3d., 30 cents; per year, 4s., \$1.00
9. **BIBLIOGRAPHY OF THE INTERNATIONAL LABOUR ORGANISATION** (*Trilingual*) (*Annual*).
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All prices and subscription rates are post free.

The *Encyclopedia of Industrial Hygiene* (11) and the *International Labour Directory* (12) are "Special Reports". Any brochures of the former and any parts of the latter published during the period covered by the subscription are included in the all-inclusive price.

Note. All the above publications are published separately in English and French, unless otherwise indicated. In addition, those marked* are published in German. *Studies and Reports* (see under 10) are published in English and French and occasionally in German.

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